

FIR-3730

**Embedded 5.25" CPU Card with VIA LUKE CPU
LVDS, GbE, SATA, USB 2.0, Audio and COM**

User Manual

Rev. 1.0





Revision History

Title	FIR-3730 Embedded 5.25" CPU card	
Revision Number	Description	Date of Issue
1.0	Initial release	November 2006

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Chapter

1

Introduction

1.1 FIR-3730 CPU Board Introduction

The FIR-3730 VIA® LUKE 5.25" CPU card is fully equipped with a high performance processor and advanced multi-mode I/Os. The FIR-3730 is designed for system manufacturers, integrators, and VARs that want performance, reliability, and quality at a reasonable price.

1.2 FIR-3730 CPU Board Overview

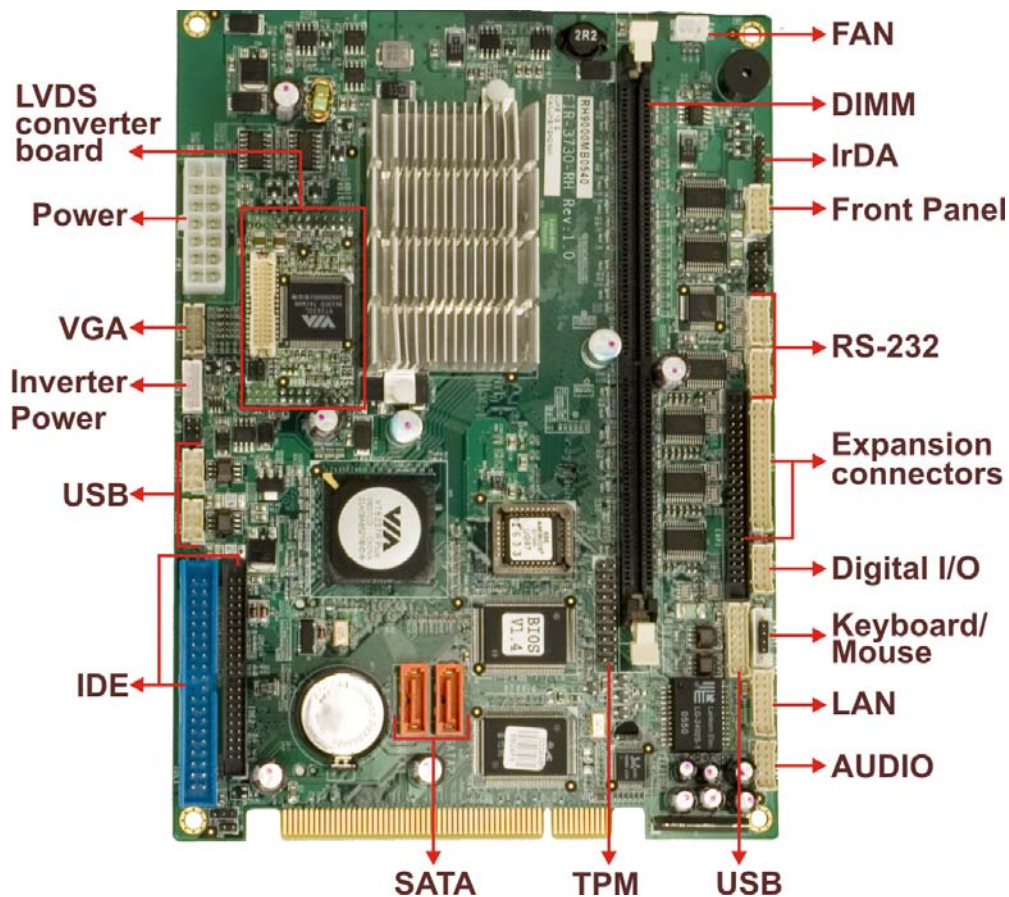


Figure 1-1: FIR-3730 CPU Board Overview

1.2.1 FIR-3730 CPU Board Connectors

The FIR-3730 CPU board has the following connectors onboard:

- 1 x Audio connector



- 1 x CompactFlash® slot (solder side)
- 1 x DDR DIMM slot
- 1 x DIO connector
- 2 x Expansion connectors
- 1 x Fan connector
- 1 x Front panel connector
- 2 x IDE device connectors
- 1 x Inverter power connector
- 1 x IrDA interface connector
- 1 x Keyboard/Mouse connector
- 1 x LAN (GbE) connector
- 2 x LCD LVDS connectors (connect with LVDS converter board)
- 1 x Power connector
- 2 x RS-232 serial port connectors
- 2 x SATA connectors
- 1 x TPM connector
- 8 x USB 2.0 connectors
- 1 x VGA connector

The location of these connectors on the CPU card can be seen in **Figure 3-1**. These connectors are fully described in **Chapter Chapter 2**.

1.3 Technical Specifications

FIR-3730 CPU board technical specifications are listed in **Table 1-1**. Detailed descriptions of each specification can be found in **Chapter Chapter 2**.

Specification	FIR-3730
CPU Type	VIA LUKE (Eden-N)
System Chipset	VIA LUKE (CN400) + VIA VT8237R+
IO Chip	Winbond W83697HG



VGA Chip	Embedded on chip, (2*5pin, 2.00mm wafer connector)
Audio Chip	AC-97 Codec (Realtek ALC655, 2*5 2.0mm wafer connector)
Network Chip	One Giga LAN Chip (RTL8110SC)
SCSI Chip	NA
Hardware Monitor	On-Chip
System Memory	One DDR DIMM slot (1GB MAX.)
Cache Memory	64KB
IDE	Two ATA133 IDE interfaces -Primary IDE: 40pin, 2.54mm box-header; -Secondary IDE: 44pin, 2.00mm box-header
SSD	One CompactFlash® slot
RS-232	Six RS-232 connectors
SATA	Two SATA connectors
USB	Eight USB 2.0 connectors supported
IrDA	One IrDA connector
Parallel Port	One parallel port (combined with Expansion Connector)
Keyboard & Mouse	One keyboard/mouse connector
Digital IO	4 in / 4 out
Watchdog Timer	On-Chip (1 ~ 255 sec/min)
LCD interface	LVDS 18/24 bits



Power Connector	14-pin connector (+5V, +12V, +5VSB, -PS_ON)
Form Factor	5. 25" form factor with PCI Golden Finger
Expansion Slot	Two expansion slots -EXP1: 44pin 2.0mm box header -EXP2: 30pin 2.0mm box header
BIOS	AMI core 8

Table 1-1: Technical Specifications

1.4 Dimensions

1.4.1 Board Dimensions

The dimensions of the board are listed below:

- Length: 203.2mm
- Width: 146.05mm

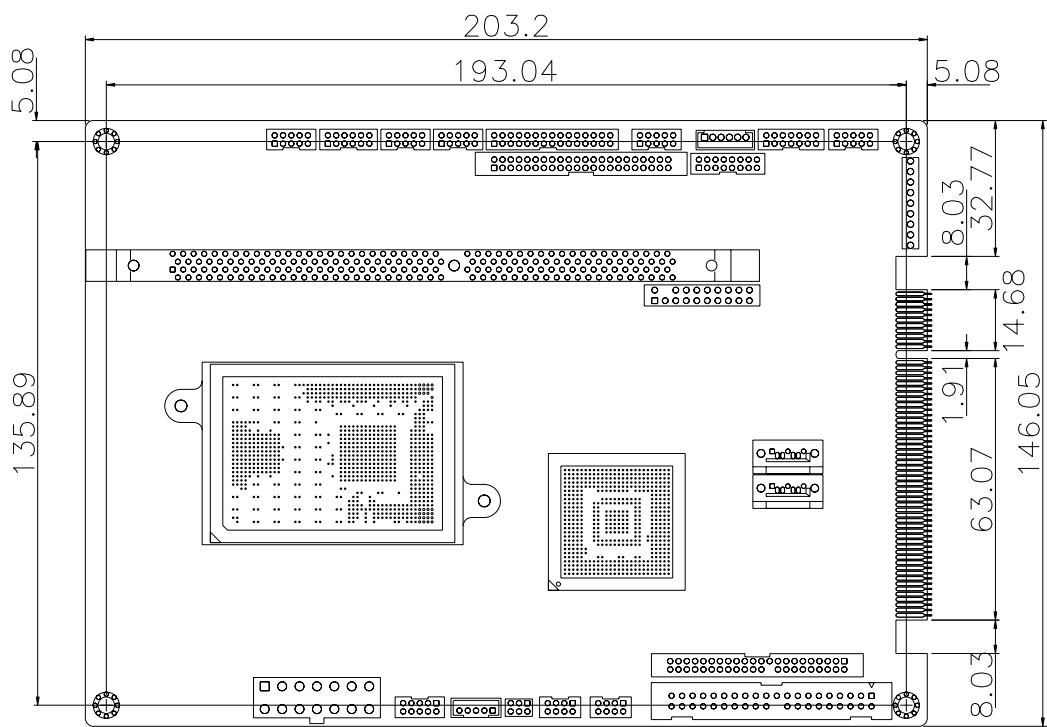


Figure 1-2: FIR-3730 Dimensions (mm)



Chapter

2

Detailed Specifications



2.1 CPU Support

The FIR-3730 CPU card comes with a preinstalled 1GHz or 533MHz, ultra low voltage (ULV) VIA® Luke processor. The new VIA 'Luke' CoreFusion Processing Platform integrates the latest generation VIA Eden-N™ processor with the VIA CN400 Northbridge in a single, low power package.

The Luke CoreFusion processor features include the following:

- **Rich Integration:** *Highly integrated processing and digital media corelogic combination delivers leading performance in a single, power-efficient, space-saving package*
- **S3 Graphics Unichrome Pro Graphics Core:** *With an internal data flow equivalent to what is available to the latest AGP 8X graphics cards, Unichrome Pro has separate 128-bit data path between the Northbridge for pixel data flow and texture/command access. Separate 128-bit 2D and 3D graphics engines ensure optimal performance for all multimedia, entertainment, and productivity applications.*
- **Flawless Digital Media Playback:** *Unichrome Pro includes native support for the most popular digital video and audio playback through hardware MPEG-2/-4 acceleration and acclaimed VIA Vinyl Audio suite, delivering spectacular playback for entertainment devices.*
- **Maximum Display Flexibility:** *Unichrome Pro with its optimized shared memory architecture and high definition video support through the Chromotion CE Video Display Engine, offers a breathtaking visual experience for the latest HDTV format displays. Support for LVDS and DVI interfaces enables complete flexibility for integration into a wide range of embedded and personal electronics applications*
- **Native Serial ATA:** *The VIA DriveStation™ Controller Suite with native dual channel Serial ATA controller provides direct support for two 1.5Gb/s Serial ATA devices and the SATAlite™ interface expands support for two additional SATA devices.*



2.2 SouthbridgeChipset

The FIR-3730 CPU card has a VIA VT8237R Plus Southbridge on-board. A summary of the available Southbridge features is listed below. For more information on this chipset please visit the VIA website.

- VIA DriveStation™ Controller Suite
 - Serial ATA
 - *Full duplex high performance 1.5Gb/s Dual Channel Serial ATA interface*
 - *Support for additional two Serial ATA devices through SATA Lite™ interface*
 - Parallel ATA 133
 - *Supports up to four PATA devices*
- VIA Advanced Connectivity Suite
 - USB 2.0 Controller
 - Support for 8 USB 2.0/1.1 ports
 - *Network Controller*
 - Enterprise Class 10/100Mbps Fast Ethernet MAC
 - *PCI & LPC bus controllers*
- VIA Vinyl™ Audio
 - VIA Vinyl integrated 5.1 surround sound
 - *AC '97 audio*
 - *VIA Six-TRAC codec*
 - VIA Vinyl Gold on-board 7.1 surround sound
 - *24/96 resolution audio*
 - *VIA Envy24PT + VIA Six-TRAC Codec + additional DAC*
 - VIA Stylus Audio drivers
 - *Integrated Sensaura technology*
 - *Full 3D gaming support*
- V-MAP Architecture
 - Ultra V-Link
 - *High throughput 1GB/s South Bridge/North Bridge interconnect*
 - *Supports new generation VIA North Bridges across all processor platforms*



- 8X V-Link
 - High speed 533MB/s South Bridge/North Bridge interconnect
 - Supports current generation VIA North Bridges across all processor platforms
- VIA Hyperion 4in1 Unified Drivers
 - Optimized system performance and stability

2.3 Data Flow

Figure 2-1 shows the data flow between the two on-board chipsets and other components installed on the CPU card and described in the following sections of this chapter.

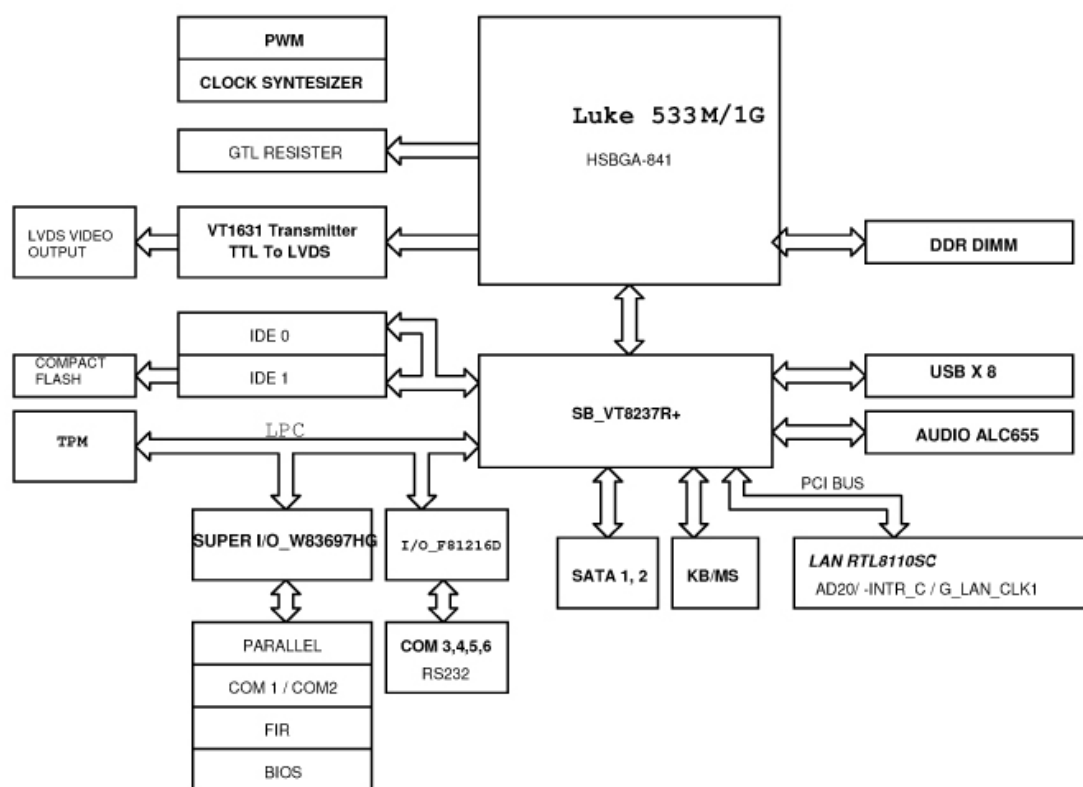


Figure 2-1: Data Flow Block Diagram

2.4 Graphics Support

The LUKE processor comes with a S3 Chromotion graphics engine. The features listed below are compatible with S3 Graphics' Chrome S20 Series processors:



- **Chromotion Video Acceleration:-**
 - **WMV9 Motion Compensation H/W Acceleration** – *Reduces CPU utilization when decoding Windows Media Video 9 (WMV9) files.*
 - **MPEG-2 IDCT and Motion Compensation H/W Acceleration** – *Reduces CPU utilization when decoding MPEG2 files.*
- **Chromotion Hi-Def™ Support:-**
 - **HDTV Formats** – *Supports all 18 DTV ATSC formats.*
 - **Adaptive Per-Pixel De-Interlacing** – *Produces superior image quality for both still and motion images using a high quality De-Interlacing process.*
 - **Video Deblocking** – *Removes blocking artifacts inherent in low bit rate images.*
 - **ChromoVision** – *Displays full screen video on secondary HDTV display while a windows display of the video is on the primary CRT or DVI display.*
 - **ChromoVision Modes with ChromeView Non-Linear Scaling** – *Scales a standard 4:3 image to fill a wide-screen 16:9 display with excellent image quality.*
 - **PanelDrive** – *Eliminates blurring effects with motion video on panel displays by increasing panel response time.*
 - **ChromoColor** – *Provides adjustment controls for the brightness, contrast, hue and saturation of the display of video.*
- **Chromotion Video Image Controls:-**
 - **ChromoColor Tonal Adjustment** – *Allows fine-tuning of luma values for the video display with controls for black point and white point enhancement.*
 - **ArtisticLicense Effects** – *Allows high quality image enhancements; including Sharpening, Soft Focus, Embossing, and Neon Edge effects.*

2.5 LVDS Display Support

The FIR-3730 CPU card supports TTL displays. Using the LVDS converter board enables connectivity to 18-bit or 24-bit flat panel displays. The daughterboard comes with an on-board VIA VT1631L Low Voltage Differential Signaling (LVDS) Transmitter. The VIA VT1631L is designed to support pixel data transmissions from a Host to a Flat Panel display ranging from VGA to UXGA resolutions. VIA VT1631 features are listed below.



- Complies with Open LDI Specification for Digital Display Interfaces
- 25 to 85 MHz Input Clock Support
- Supports VGA through UXGA Panel Resolution
- Power-down mode <198uW max (TBD)
- Two-wire Serial Communication Interface up to 400KHz
- Narrow Bus reduces cable size and cost
- Up to 592Mbytes/sec bandwidth
- Dual 12-bit double pumped digital input port
- PLL requires no external components
- Support both LVTTTL and low voltage level input (Capable of 1.0 to 1.8V)
- Programmable input clock and control strobe select
- Compatible with TIA/EIA-644
- 2.24 to 2.75 supply voltage
- TQFP-100 Thin Quad Flat package

2.6 Memory Support

The FIR-3730 CPU has one 184-pin dual inline memory module (DIMM) sockets and supports one DDR DIMM modules with a maximum RAM of up to 1GB.

2.7 Drive Interfaces

The FIR-3730 can support the following drive interfaces.

- 2 x SATA drives
- 4 x IDE devices
- 1 x Compact flash card

2.7.1 SATA Drive Support

The FIR-3730 CPU card supports two, first generation SATA drives, with transfer rates up to 1.5Gb/s.

2.7.2 IDE HDD Interfaces



The FIR-3730 southbridge chipset IDE controller supports up to four HDDs with the following specifications:

- Supports PIO IDE transfers up to 16MB/s
- Supports Ultra ATA/133 devices with data transfer rates up to 133MB/s

2.7.3 Compact Flash Card

The FIR-3730 CPU card supports standard CFII flash cards.

2.8 Serial Ports

The FIR-3730 CPU card supports six high-speed UART serial ports. COM3 and COM6 are configured as two RS-232 10-pin wafer connectors; COM1, COM2, COM4 and COM5 are combined with the expansion connector.

2.9 Infrared Data Association (IrDA) Interface

The FIR-3730 CPU card IrDA supports the following interfaces.

- Serial Infrared (SIR)
- Shift Keyed Infrared (ASKIR)

If an IrDA port is used, the SIR or ASKIR mode must be configured in the BIOS under **Super IO devices**. The normal RS-232 COM 2 is then disabled.

2.10 USB Interfaces

The FIR-3730 CPU card supports eight USB ports. The USB interfaces support both USB 2.0 and USB 1.1.

2.11 BIOS

The FIR-3730 CPU card uses a licensed copy of AMI BIOS. The features of the flash BIOS used are listed below:



- SMIBIOS (DMI) compliant
- Console redirection function support
- PXE (Pre-Boot Execution Environment) support
- USB booting support

2.12 Operating Temperature and Temperature Control

The maximum and minimum operating temperatures for the FIR-3730 CPU card are listed below.

- Minimum Operating Temperature: 0°C (32°F)
- Maximum Operating Temperature: 60°C (140°F)

A heat sink must be installed on the CPU. Thermal paste must be smeared on the lower side of the heat sink before it is mounted on the CPU. Heat sinks are also mounted on the southbridge chipset to ensure the operating temperature of these chips remain low.

2.13 Audio Codec

The FIR-3730 has an integrated Realtek ALC655 codec. The ALC655 codec is a 16-bit, full-duplex AC'97 Rev. 2.3 compatible six-channel audio CODEC designed for PC multimedia systems, including host/soft audio and AMR/CNR-based designs. Some of the features of the codec are listed below.

- Meets performance requirements for audio on PC99/2001 systems
- Meets Microsoft WHQL/WLP 2.0 audio requirements
- 16-bit Stereo full-duplex CODEC with 48KHz sampling rate
- Compliant with AC'97 Rev 2.3 specifications
- Front-Out, Surround-Out, MIC-In and LINE-In Jack Sensing
- 14.318MHz -> 24.576MHz PLL to eliminate crystal
- 12.288MHz BITCLK input
- Integrated PCBEEP generator to save buzzer
- Interrupt capability
- Three analog line-level stereo inputs with 5-bit volume control, LINE_IN, CD, AUX



- High-quality differential CD input
- Two analog line-level mono inputs: PCBEEP, PHONE-IN
- Two software selectable MIC inputs
- Dedicated Front-MIC input for front panel applications (software selectable)
- Boost preamplifier for MIC input
- LINE input shared with surround output; MIC input shared with Center and LFE output
- Built-in 50mW/20ohm amplifier for both Front-out and Surround-Out
- External Amplifier Power Down (EAPD) capability
- Power management and enhanced power saving features
- Supports Power-Off CD function
- Adjustable VREFOUT control
- Supports 48KHz S/PDIF output, complying with AC'97 Rev 2.3 specifications
- Supports 32K/44.1K/48KHz S/PDIF input
- Power support: Digital: 3.3V; Analog: 3.3V/5V
- Standard 48-pin LQFP package
- EAX™ 1.0 & 2.0 compatible
- Direct Sound 3D™ compatible
- A3D™ compatible
- I3DL2 compatible
- HRTF 3D positional audio
- 10-band software equalizer
- Voice cancellation and key shifting in Karaoke mode
- AVRack® Media Player
- Configuration Panel for improved user convenience



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Chapter

3

Connectors and Jumpers

3.1 Peripheral Interface Connectors

Section 3.1.1 shows peripheral interface connector locations. Section 3.1.2 lists all the peripheral interface connectors seen in Section 3.1.1.

3.1.1 FIR-3730 Layout

Figure 3-1 and Figure 3-2 show the on-board peripheral connectors, rear panel peripheral connectors and on-board jumpers.

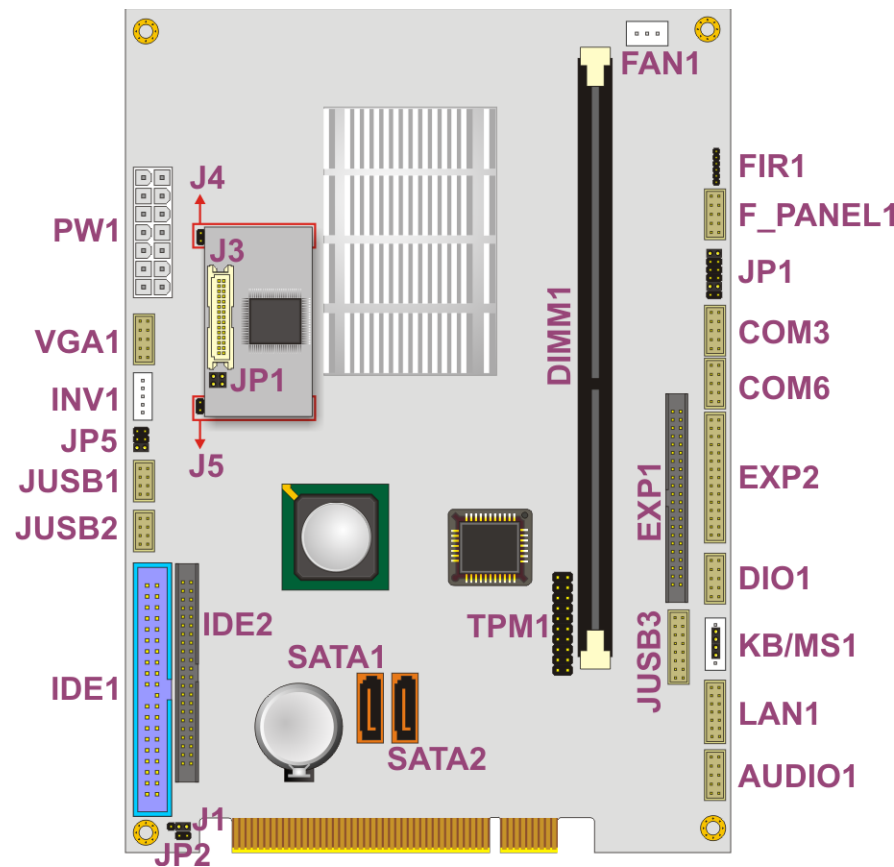


Figure 3-1: Connector and Jumper Locations

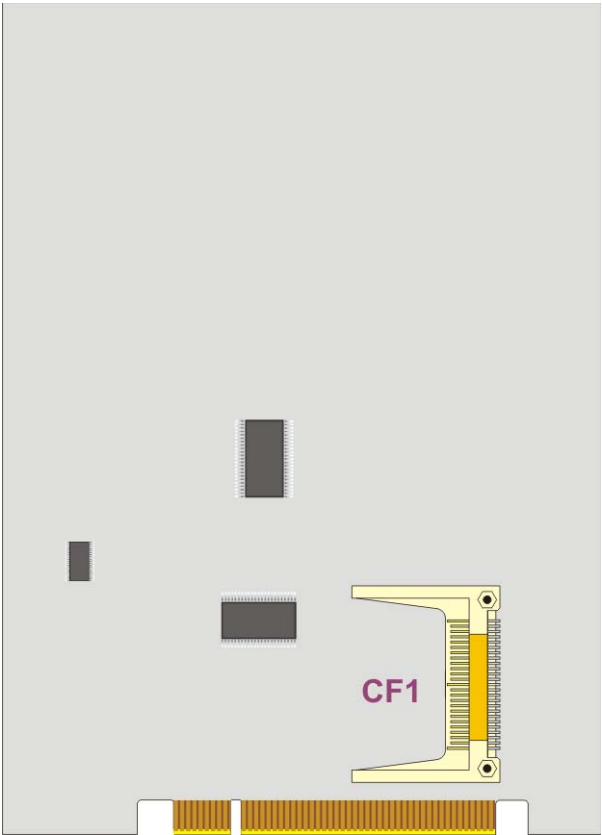


Figure 3-2: Connector and Jumper Locations (Solder Side)

3.1.2 Peripheral Interface Connectors

Table 3-1 shows a list of the peripheral interface connectors on the FIR-3730. Detailed descriptions of these connectors can be found in **Section 3.2**.

Connector	Type	Label
Audio connector	10-pin wafer connector	AUDIO1
CompactFlash® (CF) connector	50-pin CF slot	CF1
DDR DIMM slot	184-pin DIMM slot	DIMM1
DIO connector	10-pin wafer connector	DIO1



Expansion connector	44-pin box header	EXP1
Expansion connector	30-pin wafer connector	EXP2
Fan connector	3-pin wafer connector	FAN1
Front panel connector	10-pin wafer connector	F_PANEL1
IDE Interface connector (primary)	40-pin box header	IDE1
IDE Interface connector (secondary)	44-pin box header	IDE2
Inverter power connector	5-pin wafer connector	INV1
IR interface connector	6-pin header	FIR1
Keyboard/Mouse connector	6-pin wafer connector	KB/MS1
LAN connector (GbE)	14-pin wafer connector	LAN1
LCD LVDS connectors (connect with LVDS converter board)	28-pin header	J4 J5
Power connector	14-pin connector	PW1
RS-232 serial port connector	10-pin wafer connector	COM3
RS-232 serial port connector	10-pin wafer connector	COM6
SATA drive connector	7-pin SATA connector	SATA1
SATA drive connector	7-pin SATA connector	SATA2
TPM connector	20-pin header	TPM1
USB connector	8-pin wafer connector	JUSB1
USB connector	8-pin wafer connector	JUSB2



USB connector	16-pin wafer connector	JUSB3
VGA connector	10-pin wafer connector	VGA1

Table 3-1: Peripheral Interface Connectors

3.1.3 On-board Jumpers

The FIR-3730 CPU card has five jumpers, four on the main board and one on the LVDS converter board. **Table 3-2** lists the jumpers. Detailed descriptions of these jumpers can be found in **Section 3.3**.

Description	Label	Type
Clear CMOS	J1	3-pin header
CF card setup	JP2	2-pin header
COM 3 and COM6 voltage setup	JP1	12-pin header
LCD voltage setup	JP5	6-pin header
LVDS setup (on LVDS converter board)	JP1	4-pin header

Table 3-2: On-board Jumpers

3.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the CPU card and are only accessible when the CPU card is outside of the chassis. This section has complete descriptions of all the internal, peripheral connectors on the FIR-3730.



3.2.1 Audio Connector

- CN Label:** AUDIO1
- CN Type:** 10-pin wafer connector (2x5)
- CN Location:** See Figure 3-3
- CN Pinouts:** See Table 3-3

The audio connector is connected to an on-board codec. An external audio connector kit can be connected to the connector to provide sound input and output.

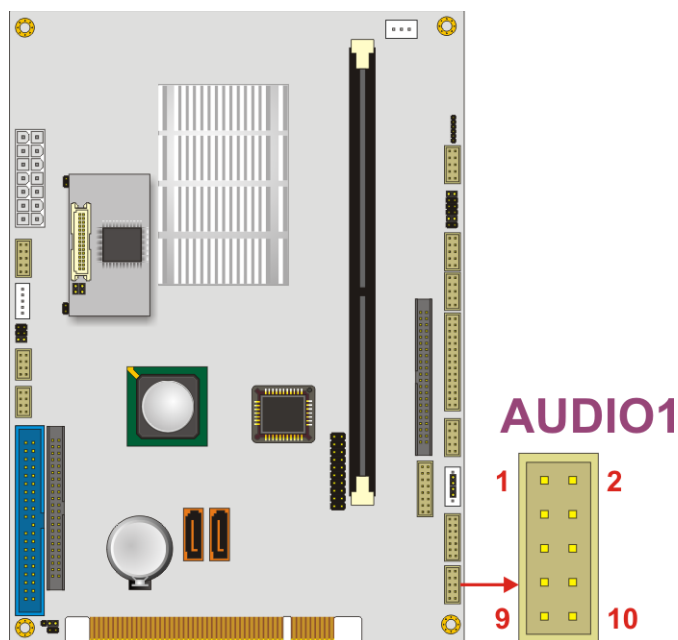


Figure 3-3: Audio Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LINE_OUT_R	2	MICIN
3	GNDA	4	GNDA
5	NC	6	LINE_IN_L

7	GND_A	8	GND_A
9	LINE_OUT_L	10	LINE_IN_R

Table 3-3: Audio Connector Pinouts

3.2.2 CompactFlash® Connector

- CN Label:** CF1 (solder side)
- CN Type:** 50-pin CF slot (2x25)
- CN Location:** See Figure 3-4
- CN Pinouts:** See Table 3-4

A compact flash memory module is inserted to the CompactFlash® connector (CF1) on the solder side of the FIR-3730.

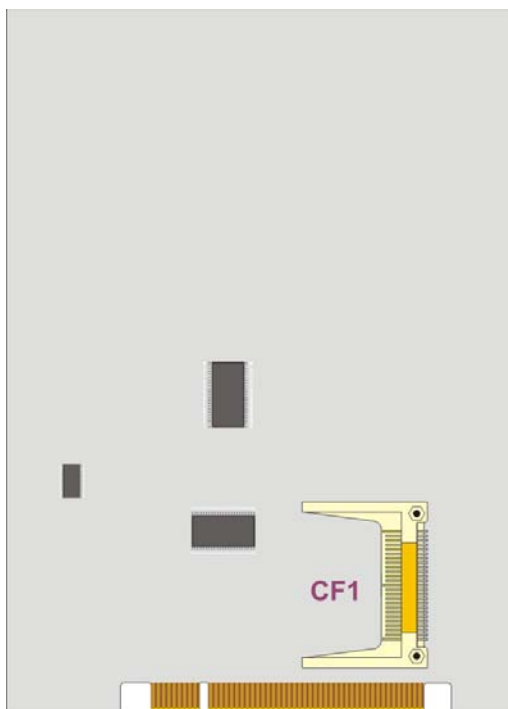


Figure 3-4: Compact Flash Connector Location (Solder Side)



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	VCC-IN CHECK1
2	DATA 3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14
6	DATA 7	31	DATA 15
7	HDC_CS0#	32	HDC_CS1
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	VCC_COM
12	N/C	37	IRQ15
13	VCC_COM	38	VCC_COM
14	N/C	39	CSEL
15	N/C	40	N/C
16	N/C	41	HDD_RESET
17	N/C	42	IORDY
18	SA2	43	SDREQ
19	SA1	44	SDACK#
20	SA0	45	HDD_ACTIVE#
21	DATA 0	46	66DET
22	DATA 1	47	DATA 8
23	DATA 2	48	DATA 9
24	N/C	49	DATA 10
25	VCC-IN CHECK2	50	GROUND

Table 3-4: Compact Flash Connector Pinouts



3.2.3 Digital Input/Output Connector

- CN Label:** DIO1
- CN Type:** 10-pin wafer connector (2x5)
- CN Location:** See Figure 3-5
- CN Pinouts:** See Table 3-5

The Digital Input/Output (DIO) connector is managed through a Super I/O chip. The DIO connector pins are user programmable.

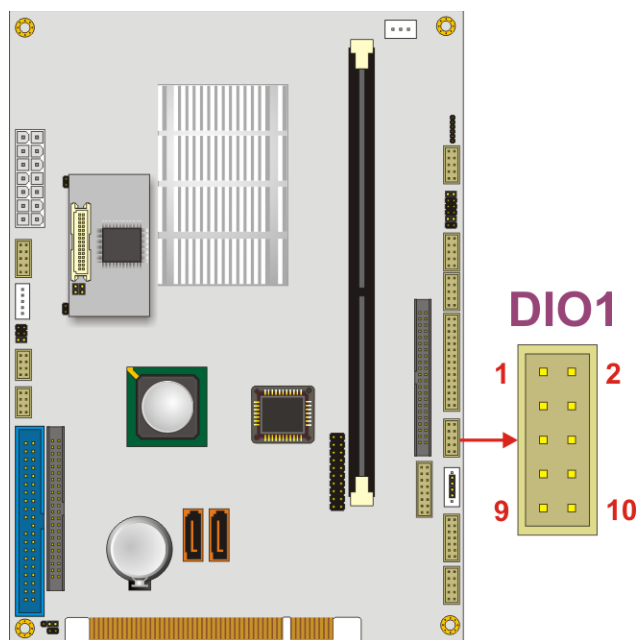


Figure 3-5: DIO Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	IN00	2	IN01
3	IN02	4	IN03
5	OUT00	6	OUT01

7	OUT02	8	OUT03
9	GND	10	+5V

Table 3-5: DIO Connector Pinouts

3.2.4 Expansion Connectors

- CN Label:

EXP1 and EXP2
- CN Type:

44-pin box header (2x22) and 30-pin wafer connector (2x15)
- CN Location:

See Figure 3-6
- CN Pinouts:

See Table 3-6 and Table 3-7

The expansion connectors support four RS-232 serial ports (COM1, COM2, COM4 and COM5) and one parallel port.

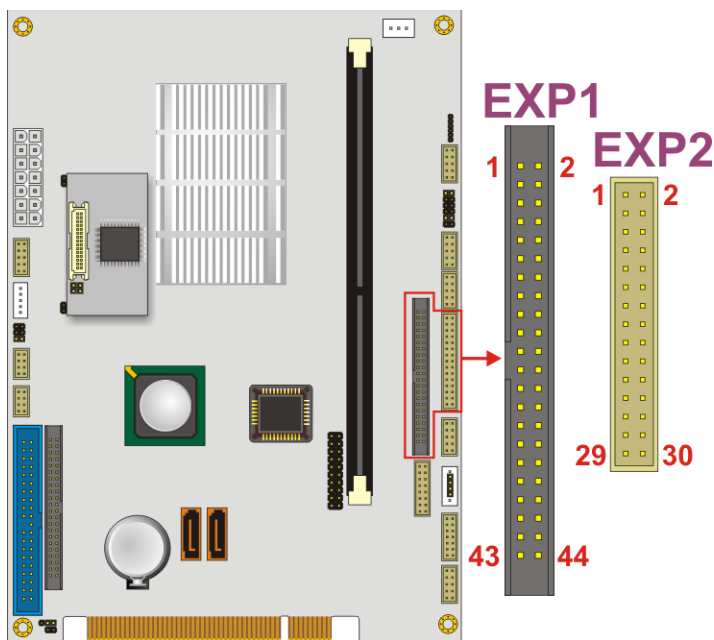


Figure 3-6: Expansion Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD1	2	-NDSR1
3	NRX1	4	-NRTS1
5	NTX1	6	-NCTS1
7	-NDTR1	8	-NRI 1
9	DOUT4	10	DOUT5
11	-NDCD2	12	-NDSR2
13	NRX2	14	-NRTS2
15	NTX2	16	-NCTS2
17	-NDTR2	18	-NRI 2
19	DOUT6	20	DOUT7
21	K/BCLK	22	K/BDATA
23	MSCLK	24	MSDATA
25	GND	26	GND
27	GND	28	-STB
29	PTD0	30	PTD1
31	PTD2	32	PTD3
33	PTD4	34	PTD5
35	PTD6	36	PTD7
37	-LP_ACK	38	LP_PE
39	LP_BUSY	40	LP_SLCT
41	-LP_AFD	42	-LP_ERR
43	-LP_INIT	44	-LP_SLIN

Table 3-6: Expansion (EXP1) Connector Pinouts

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD4	2	-NDSR4
3	NRX4	4	-NRTS4
5	NTX4	6	-NCTS4
7	-NDTR4	8	-NRI 4
9	DOUT8	10	DOUT9
11	-NDCD5	12	-NDSR5



13	NRX5	14	-NRTS5
15	NTX5	16	-NCTS5
17	-NDTR5	18	-NRI5
19	DOUT10	20	DOUT11
21	GND	22	GND
23	LINE_IN_L	24	LINE_IN_R
25	LINE_OUT_L	26	LINE_OUT_R
27	OUT00	28	IN00
29	OUT01	30	GND

Table 3-7: Expansion (EXP2) Connector Pinouts

3.2.5 Fan Connector

- CN Label:** FAN1
- CN Type:** 3-pin wafer connector
- CN Location:** See Figure 3-7
- CN Pinouts:** See Table 3-8

The cooling fan connector on the FIR-3730 provides a 5V current to a cooling fan. All cooling fans have linear fan speed controlled by BIOS.

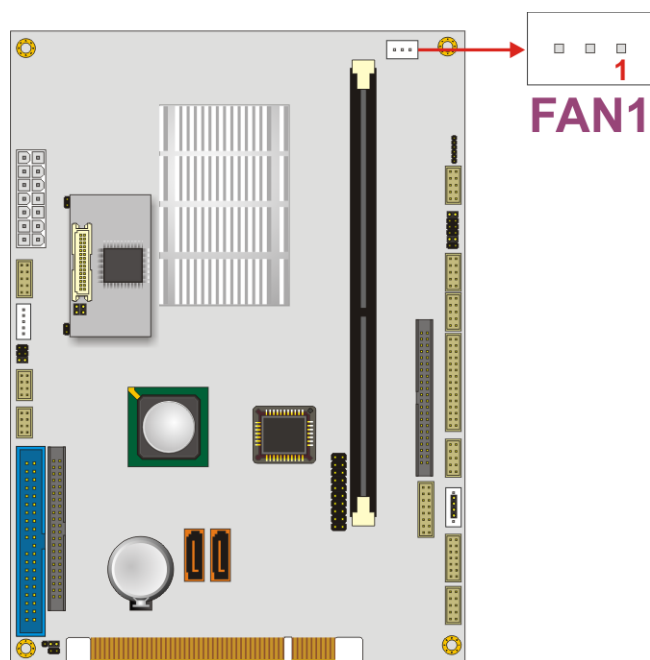


Figure 3-7: Fan Connector Location

PIN NO.	DESCRIPTION
1	Fan Speed Detect
2	+5V
3	GND

Table 3-8: Fan Connector Pinouts

3.2.6 Front Panel Connector

- CN Label:** F_PANEL1
- CN Type:** 10-pin wafer connector (2x5)
- CN Location:** See Figure 3-8
- CN Pinouts:** See Table 3-9

The front panel connector connects to several external switches and indicators to monitor and control the CPU card. These indicators and switches include:

- Power button
- Reset button
- HDD LED
- Power LED

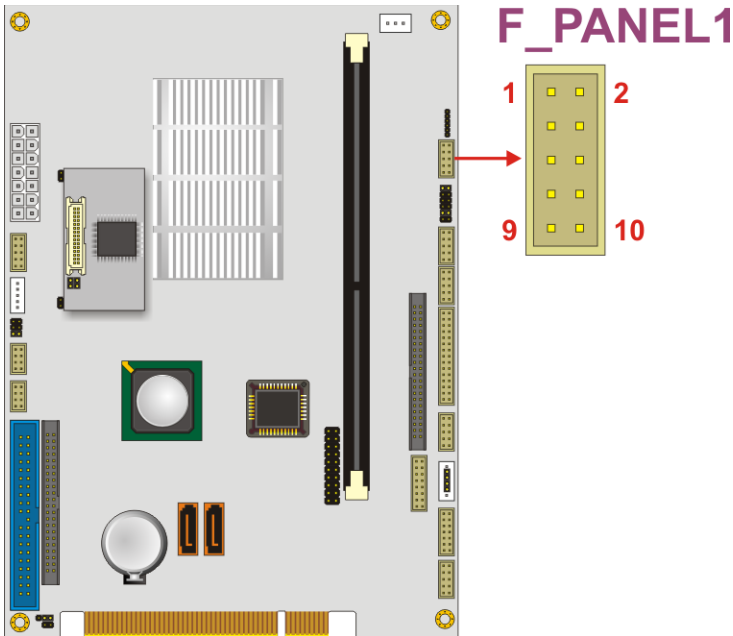


Figure 3-8: Front Panel Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PWRLED+	2	RESET SW
3	PWRLED-	4	RESET SW
5	NC	6	NC
7	HDDLED+	8	PWRBTN
9	HDDLED-	10	PWRBTN

Table 3-9: Front Panel Connector Pinouts



3.2.7 Primary IDE Connector

- CN Label:** IDE1
- CN Type:** 40-pin box header (2x20)
- CN Location:** See Figure 3-9
- CN Pinouts:** See Table 3-10

One 40-pin IDE device connector on the FIR-3730 CPU card supports connectivity to Ultra ATA 133 IDE devices with data transfer rates up to 133MB/s.

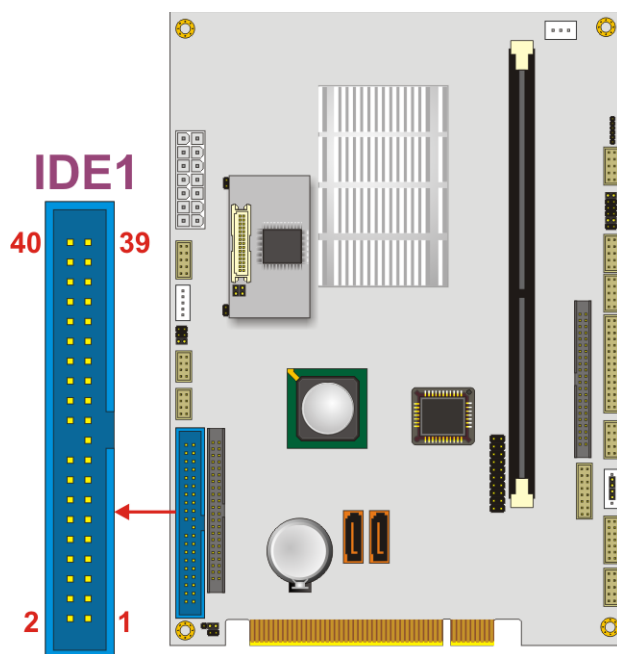


Figure 3-9: Primary IDE Device Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10



9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	IDE DRQ	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	IDE CHRDY	28	CABLE SELECT
29	IDE DACK	30	GROUND—DEFAULT
31	INTERRUPT	32	N/C
33	SA1	34	PDIAG#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND

Table 3-10: Primary IDE Connector Pinouts

3.2.8 Secondary IDE Connector

- CN Label:** IDE2
- CN Type:** 44-pin box header (2x22)
- CN Location:** See Figure 3-10
- CN Pinouts:** See Table 3-11

One 44-pin IDE device connector on the FIR-3730 CPU card supports connectivity to Ultra ATA 133 IDE devices with data transfer rates up to 133MB/s.

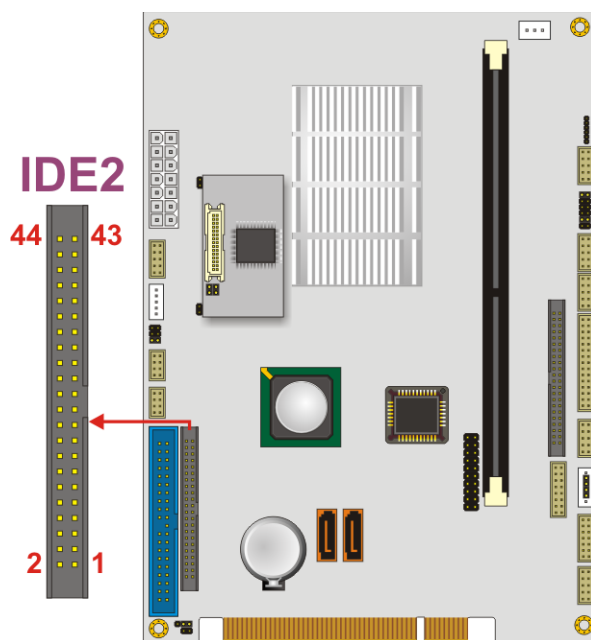


Figure 3-10: Secondary IDE Device Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RESET#	2	GROUND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GROUND	20	N/C
21	IDE DRQ	22	GROUND
23	IOW#	24	GROUND
25	IOR#	26	GROUND
27	IDE CHRDY	28	CABLE SELECT
29	IDE DACK	30	GROUND—DEFAULT



31	INTERRUPT	32	N/C
33	SA1	34	PDIAG#
35	SA0	36	SA2
37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GROUND
41	VCC	42	VCC
43	GROUND	44	N/C

Table 3-11: Secondary IDE Connector Pinouts

3.2.9 Inverter Power Connector

- CN Label:** INV1
- CN Type:** 5-pin wafer connector (1x5)
- CN Location:** See Figure 3-11
- CN Pinouts:** See Table 3-12

The inverter power connector is connected to the LCD backlight.

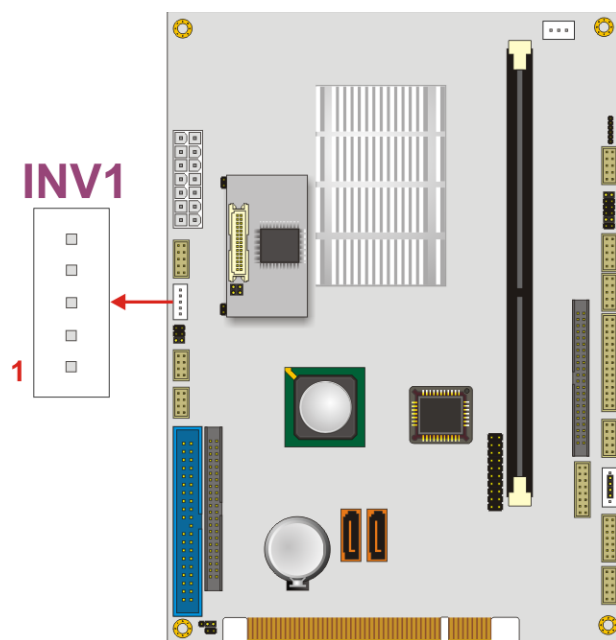


Figure 3-11: Inverter Connector Location

PIN NO.	DESCRIPTION
1	LCD_BLADJ
2	GND
3	+ 12V
4	GND
5	LCD_ENBLT

Table 3-12: Inverter Power Connector Pinouts

3.2.10 IrDA Infrared Interface Connector

CN Label: FIR1

CN Type: 6-pin header (1x6)

CN Location: See Figure 3-12



CN Pinouts: See Table 3-13

The integrated infrared (IrDA) connector supports both Serial Infrared (SIR) and Amplitude Shift Key Infrared (ASKIR) interfaces.

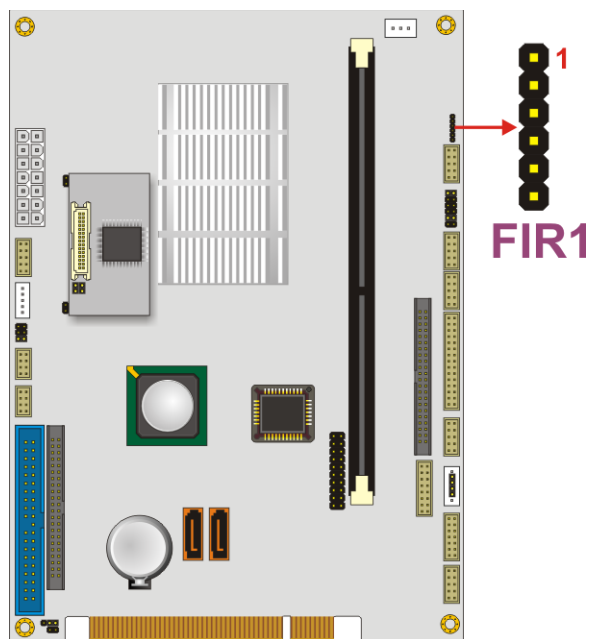


Figure 3-12: IR Connector Location

PIN NO.	DESCRIPTION
1	5V
2	NC
3	IRRX
4	GND
5	IRTX
6	CIRRX

Table 3-13: IR Connector Pinouts



3.2.11 Keyboard/Mouse Connector

- CN Label:** KB/MS1
- CN Type:** 6-pin wafer connector (1x6)
- CN Location:** See Figure 3-13
- CN Pinouts:** See Table 3-14

The keyboard and mouse connector can be connected to a standard PS/2 cable or PS/2 Y-cable to add keyboard and mouse functionality to the system.

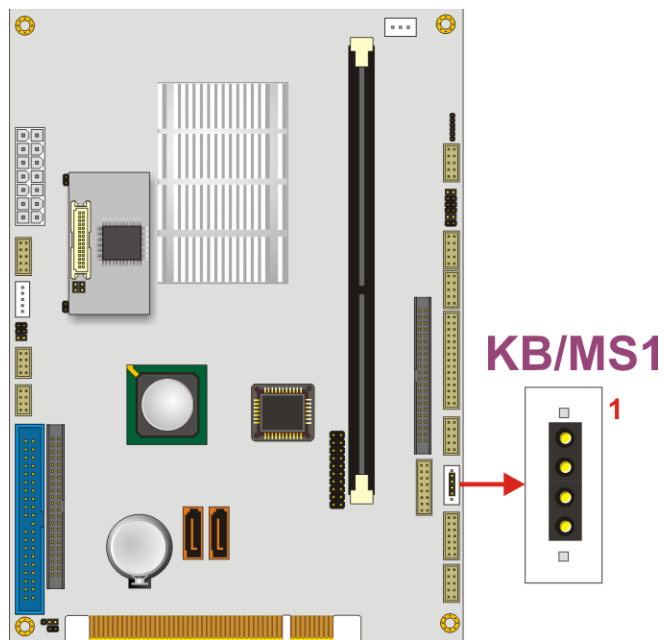


Figure 3-13: Keyboard/Mouse Connector Location

PIN NO.	DESCRIPTION
1	VCC
2	K/BCLK
3	KBCLK
4	K/BDATA

5	KBDATA
6	GND

Table 3-14: Keyboard/Mouse Connector Pinouts

3.2.12 LAN Connector

- CN Label:

LAN1
- CN Type:

14-pin wafer connector (2x7)
- CN Location:

See Figure 3-14
- CN Pinouts:

See Table 3-15

The FIR-3730 is equipped with one built-in GbE controller. The controllers connect to the LAN through an internal 14-pin wafer connector.

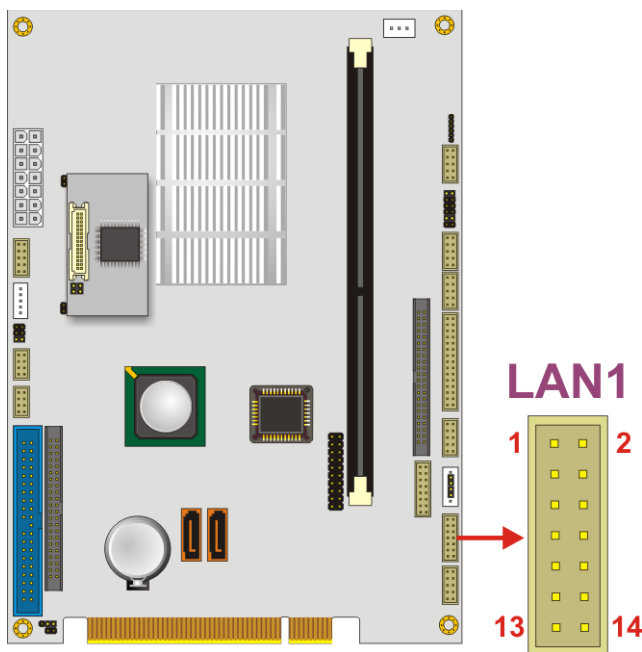


Figure 3-14: LAN Connector Location



PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	ACT LED	2	+3.3V
3	DD-	4	DD+
5	DC-	6	DC+
7	NC	8	NC
9	DB-	10	DB+
11	DA-	12	DA+
13	LINK LED	14	+3.3V

Table 3-15: LAN Connector Pinouts

3.2.13 LCD LVDS Connectors

CN Label: J4 and J5 (on FIR-3730); J3 (on daughterboard)

CN Type: 28-pin header (2x14)

CN Location: See Figure 3-15

CN Pinouts: J3: Table 3-17

J4: Table 3-18

J5: Table 3-18

The LVDS converter board is installed on the on-board J4 and J5 connectors. The LVDS converter board has one LVDS connector (J3) and supports 18-bit or 24-bit TTL devices.

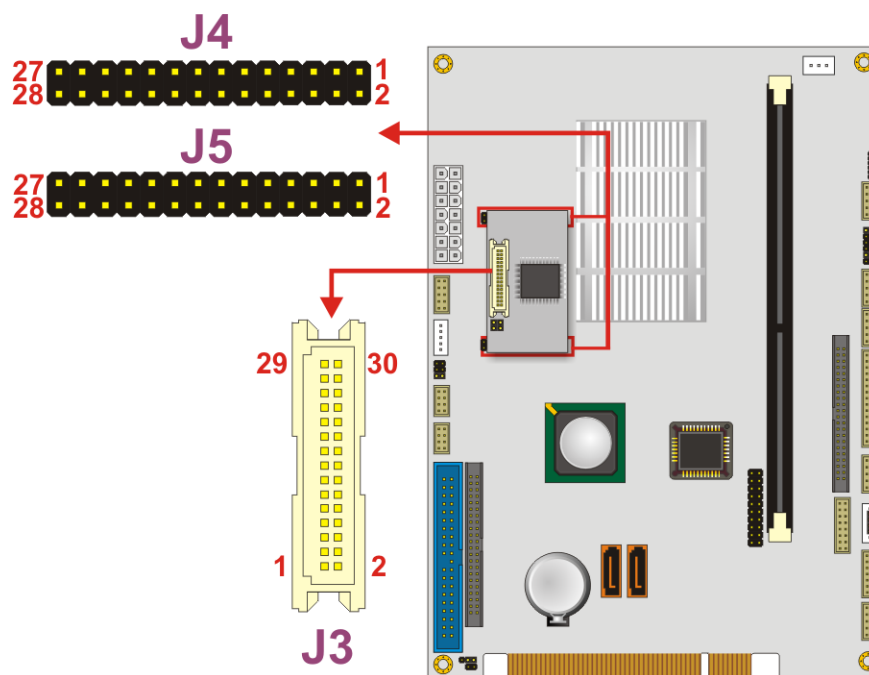


Figure 3-15: LCD LVDS Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	A0+	4	A0-
5	A1+	6	A1-
7	A2+	8	A2-
9	CLK1+	10	CLK1-
11	A3+	12	A3-
13	GND	14	GND
15	A4+	16	A4-
17	A5+	18	A5-
19	A6+	20	A6-
21	CLK2+	22	CLK2-
23	A7+	24	A7-
25	GND	26	GND
27	LCD_VDD	28	LCD_VDD
29	LCD_VDD	30	LCD_VDD

Table 3-16: LVDS Connector (J3) Pinouts

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FP6	2	FP7
3	FP4	4	FP5
5	FP2	6	FP3
7	FP0	8	FP1
9	FP6	10	FP7
11	FP22	12	FP23
13	FP20	14	FP21
15	FP18	16	FP19
17	FP16	18	FP17
19	FP22	20	FP23
21	GND	22	+2.5V
23	GND	24	+2.5V
25	GND	26	+2.5V
27	GND	28	+2.5V

Table 3-17: LVDS Connector (J4) Pinouts

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FPCLKP	2	FPCLKN
3	FPCLKP	4	FPCLKN
5	FP14	6	FP15
7	FP12	8	FP13
9	FP10	10	FP11
11	FP8	12	FP9
13	FP14	14	FP15
15	FPDEN	16	FPHS
17	FPDEN	18	FPHS
19	FPVS	20	+LCD
21	FPVS	22	+LCD
23	GND	24	+LCD
25	GND	26	+LCD



27	GND	28	+LCD
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Table 3-18: LVDS Connector (J5) Pinouts

3.2.14 Power Connector

- CN Label: PW1
- CN Type: 14-pin connector (2x7)
- CN Location: See Figure 3-16
- CN Pinouts: See Table 3-19

The power connector connects to the power source.

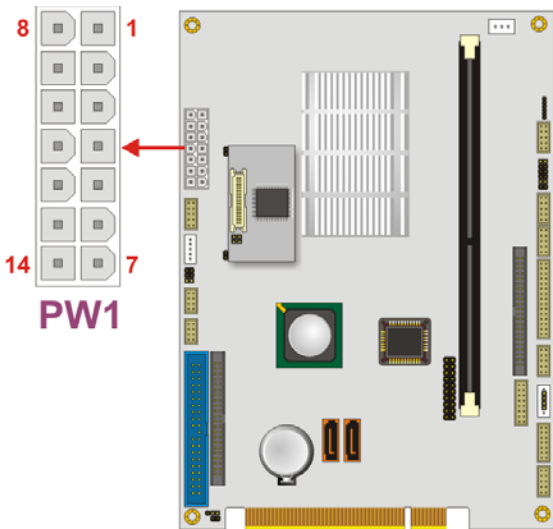


Figure 3-16: Power Connector Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+12V	8	+5V
2	+5VSB	9	+5V
3	+12V	10	+12V
4	GND	11	GND



5	+12V	12	GND
6	GND	13	-PC_ON
7	NC	14	NC

Table 3-19: Power Connector Pinouts

3.2.15 RS-232 Serial Port Connectors

- CN Label:** COM3 and COM6
- CN Type:** 10-pin wafer connector (2x5)
- CN Location:** See Figure 3-17
- CN Pinouts:** See Table 3-20 and Table 3-21

The COM3 and COM6 serial port connectors connect to RS-232 serial port devices.

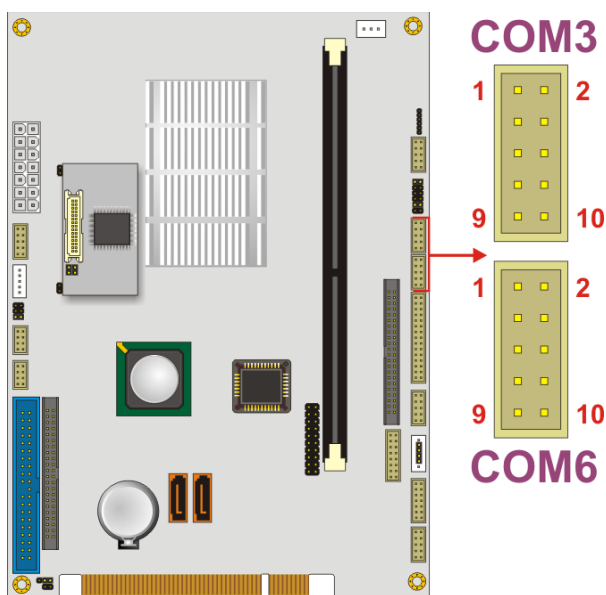


Figure 3-17: RS-232 Serial Port Connector Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD3	2	-NDSR3
3	NRX3	4	-NRTS3
5	NTX3	6	-NCTS3
7	-NDTR3	8	-NRI_3
9	GND	10	NC

Table 3-20: COM3 Connector Pinouts

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD6	2	-NDSR6
3	NRX6	4	-NRTS6
5	NTX6	6	-NCTS6
7	-NDTR6	8	-NRI_6
9	GND	10	NC

Table 3-21: COM6 Connector Pinouts

3.2.16 SATA Drive Connectors

CN Label: SATA1 and SATA2

CN Type: 7-pin SATA drive connector

CN Location: See Figure 3-18

CN Pinouts: See Table 3-22

The two SATA drive connectors are connected to two first generation SATA drives. First generation SATA drives transfer data at speeds as high as 1.5Gb/s.

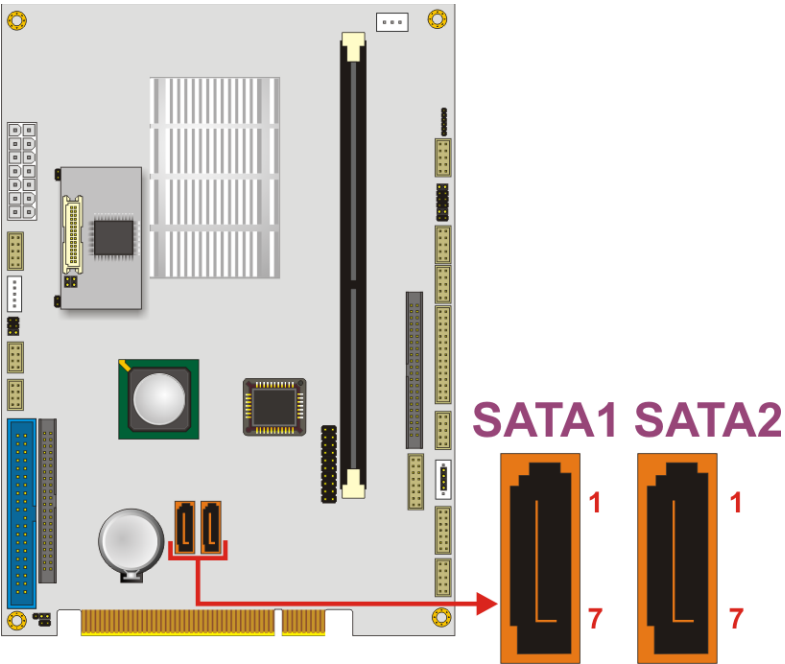


Figure 3-18: SATA Drive Connector Locations

PIN NO.	DESCRIPTION
1	GND
2	TX1+
3	TX1-
4	GND
5	RX1-
6	RX1+
7	GND

Table 3-22: SATA Drive Connector Pinouts

3.2.17 TPM Connector

CN Label:

TPM1

CN Type:

20-pin header (2x10)

- CN Location:** See Figure 3-19
- CN Pinouts:** See Table 3-23

The TPM (Trusted Platform Module) connector is a device with a controller that is used to check authenticity of digital signs and keys as well as other encryption and security functions.

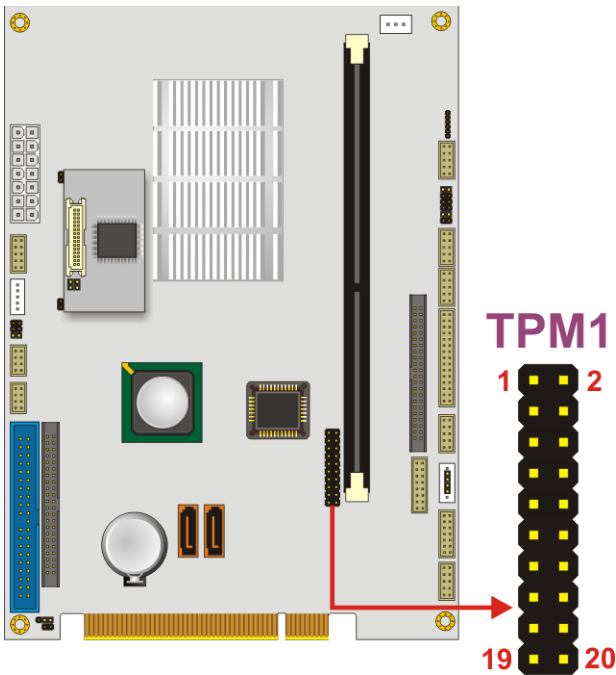


Figure 3-19: TPM Connector Pinout Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND
3	LFRAME#	4	KEY(NC)
5	LRESET#	6	+5V
7	LAD3	8	LAD2
9	+3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA



15	SB3V	16	SERIRQ
17	GND	18	CLKRUN#
19	LPCPD#	20	LDRQ#

Table 3-23: TPM Connector Pinouts

3.2.18 Internal USB Connectors

CN Label: JUSB1, JUSB2 and JUSB3

CN Type: 8-pin (2x4) and 16-pin (2x8) wafer connector

CN Location: See Figure 3-20

CN Pinouts: See Table 3-24, Table 3-25 and Table 3-26

The 2x4 USB pin connector provides connectivity to two USB 2.0 devices and the 2x8 USB pin connector supports four USB devices. The USB ports are used for I/O bus expansion.

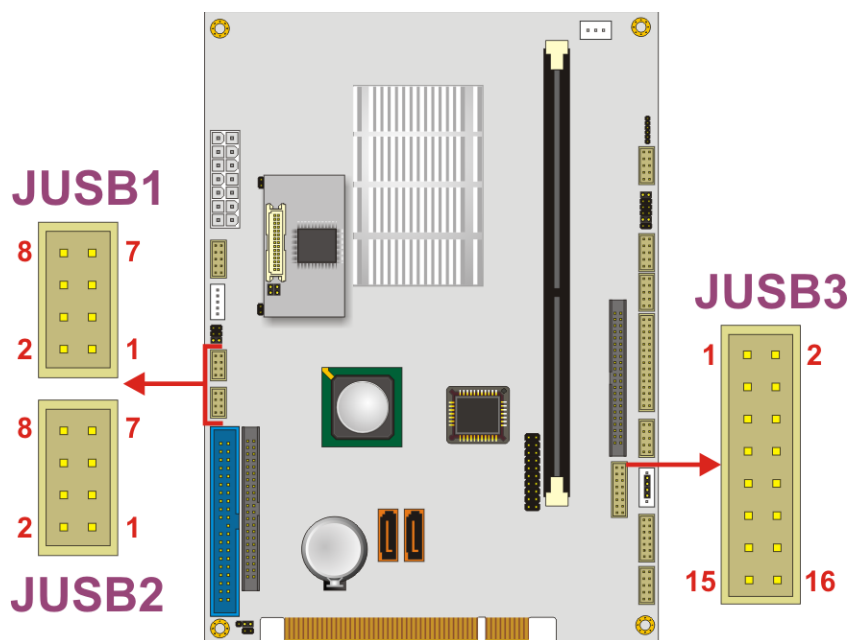


Figure 3-20: USB Connector Pinout Locations

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+ 5V	2	GND
3	USB_DT0-	4	USB_DT1 +
5	USB_DT0 +	6	USB_DT1 -
7	GND	8	+5V

Table 3-24: USB Port (JUSB1) Connector Pinouts

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+ 5V	2	GND
3	USB_DT2-	4	USB_DT3 +
5	USB_DT2 +	6	USB_DT3 -
7	GND	8	+5V

Table 3-25: USB Port (JUSB2) Connector Pinouts

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+ 5V	2	GND
3	USB_DT4-	4	USB_DT5 +

5	USB_DT4+	6	USB_DT5-
7	GND	8	+5V
9	+ 5V	10	GND
11	USB_DT6-	12	USB_DT7+
13	USB_DT6+	14	USB_DT7-
15	GND	16	+5V

Table 3-26: USB Port (JUSB3) Connector Pinouts

3.2.19 VGA Connector

- CN Label:** VGA1
- CN Type:** 10-pin wafer connector (2x5)
- CN Location:** See Figure 3-21
- CN Pinouts:** See Table 3-27

The VGA connector is an internal VGA connector.

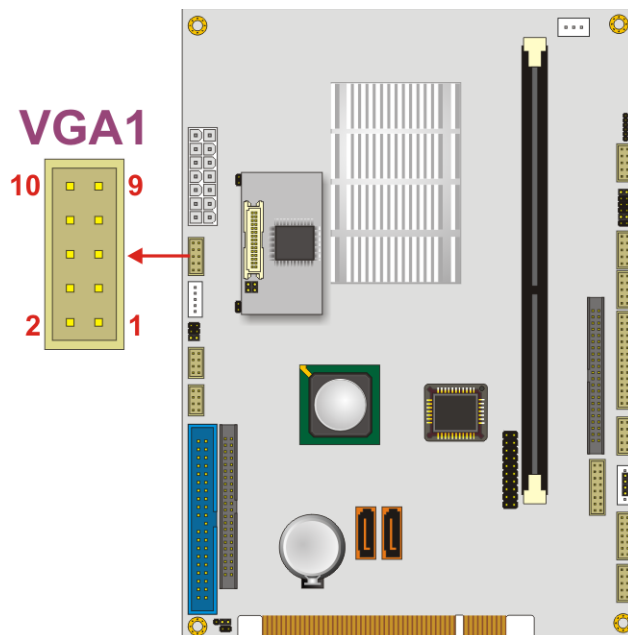




Figure 3-21: VGA Connector Pinout Location

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	R	2	SSDA
3	G	4	SSCL
5	B	6	GND
7	H_SYNC	8	GND
9	V_SYNC	10	GND

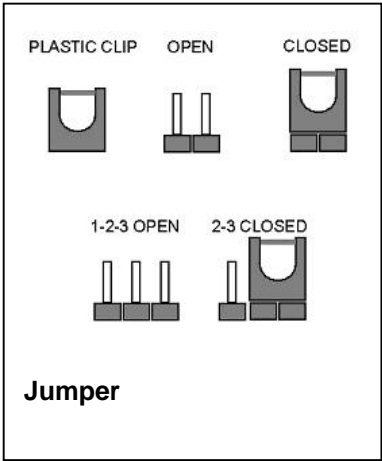
Table 3-27: VGA Connector Pinouts

3.3 Jumper Settings



NOTE:

A jumper is a metal bridge that is used to close an electrical circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.



Before the FIR-3730 is installed in the system, the jumpers must be set in accordance with the desired configuration. The FIR-3730 CPU card has five jumpers, four on the main board and one on the LVDS converter board. The jumpers are described in **Table 3-28** and shown in **Figure 3-22**.

Description	Label	Type
Clear CMOS	J1	3-pin header
CF card setup	JP2	2-pin header
COM 3 and COM6 voltage setup	JP1	12-pin header
LCD voltage setup	JP5	6-pin header
LVDS setup (on LVDS converter board)	JP1	4-pin header

Table 3-28: Jumpers

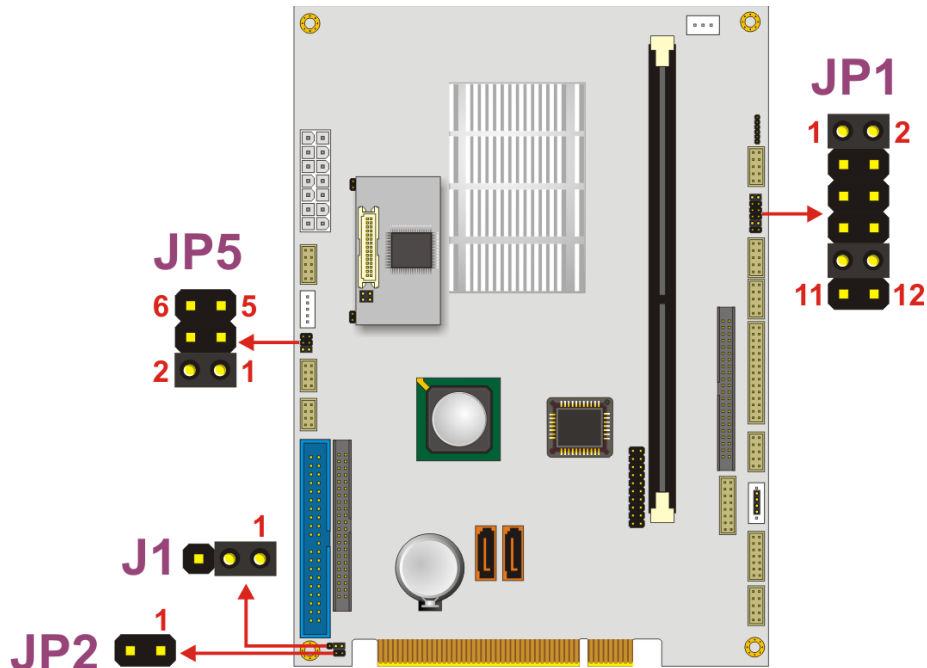


Figure 3-22: Jumper Locations

3.3.1 Clear CMOS Jumper

Jumper Label:	J1
Jumper Type:	3-pin header
Jumper Settings:	See Table 3-29
Jumper Location:	See Figure 3-22

If the FIR-3730 fails to boot due to improper BIOS settings, use this connector to clear the CMOS data and reset the system BIOS information. To do this, disconnect J1 and keep it disconnected for at least five seconds. After five seconds has elapsed, reinsert the connector.



If the “CMOS Settings Wrong” message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults

After having done one of the above, save the changes and exit the CMOS Setup menu.

Clear CMOS	DESCRIPTION
Short 1 ~ 2	Keep CMOS Setup (Default)
Short 2 ~ 3	Clear CMOS Setup

Table 3-29: Clear CMOS Jumper (J1) Settings

3.3.2 CF Card Setup

Jumper Label:	JP2
Jumper Type:	2-pin header
Jumper Settings:	See Table 3-30
Jumper Location:	See Figure 3-22

The JP2 jumper sets the compact flash card as either the slave device or the master device.

CF Card Setup	DESCRIPTION
Open	Slave (Default)
Closed	Master

Table 3-30: CF Card Setup Jumper (JP2) Settings



3.3.3 COM3 and COM6 Voltage Setup

Jumper Label:	JP1
Jumper Type:	12-pin header
Jumper Settings:	See Table 3-31
Jumper Location:	See Figure 3-22

The FIR-3730 COM3 and COM6 serial port voltage setup jumper settings are shown in **Table 3-31** and the location of the jumper is shown in **Figure 3-22**.

JP1	Description
Short 1 ~ 2	COM3 (+5V)
Short 3 ~ 4	COM3 (RI)
Short 5 ~ 6	COM3 (+12V)
Short 7 ~ 8	COM6 (+5V)
Short 9 ~ 10	COM6 (RI)
Short 11 ~ 12	COM6 (+12V)

Table 3-31: COM3 and COM6 Voltage Setup Jumper (JP1) Settings

3.3.4 LCD Voltage Setup Jumper



WARNING:

Making the wrong setting on this jumper may cause irreparable damage to both the CPU card and the LCD screen connected to the on-board connector.



Jumper Label: JP5

Jumper Type: 6-pin header

Jumper Settings: See Table 3-32

Jumper Location: See Figure 3-22

This jumper allows the user to set the voltage for the LCD panel. Before setting this jumper please refer to the LCD panel user guide to determine the required voltage. After the required voltage is known, make the necessary jumper setting in accordance with the settings shown in **Table 3-32**.

JP5	Description
Short 1 ~ 2	+3.3V (Default)
Short 3 ~ 4	+5V
Short 5 ~ 6	+12V

Table 3-32: LCD Voltage Select Jumper Settings

3.3.5 LVDS Setup



WARNING:

Making the wrong setting on this jumper may cause irreparable damage to both the CPU card and the LCD screen connected to the on-board connector.

Jumper Label: JP1 (on LVDS converter board)

Jumper Type: 4-pin header

Jumper Settings: See Table 3-33

Jumper Location: See Figure 3-23

This jumper located on LVDS converter board configures the LVDS flat panel screen. The jumper settings and pinout locations are shown below.

LVDS	DESCRIPTION
1-2	Open: Dual Channel Short: Single Channel (Default)
3-4	Open: Single-Ended Clock Short: Dual Clock (Default)

Table 3-33: LVDS Jumper Settings

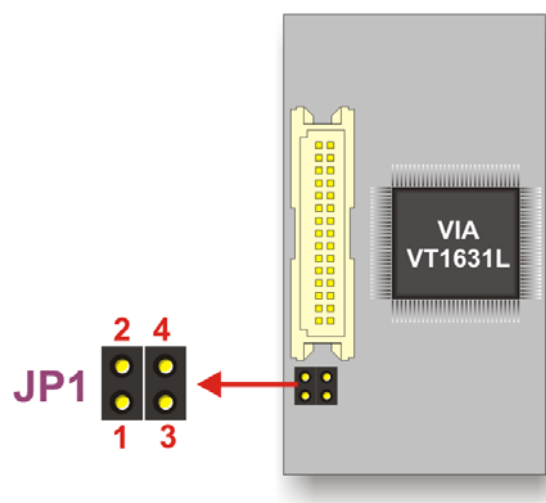


Figure 3-23: LVDS Jumper Pinout Locations



Chapter

4

Award BIOS Setup



4.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options are user configurable.

4.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the “**Press Del to enter SETUP**” message appears on the screen.

If the message disappears before the user responds, restart the computer and try again.

4.1.2 Using Setup

Use the arrow keys to highlight items, press ENTER to select, use the PageUp and PageDown keys to change entries, press F1 for help and press ESC to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes



F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 4-1: BIOS Navigation Keys

4.1.3 Getting Help

When F1 is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press Esc or the F1 key again.

4.1.4 Unable to Reboot After Configuration Changes

If the computer is unable to boot after changes are made to the system configuration, restore the CMOS defaults. Use the jumper described in Chapter **Chapter 3, Section 3.3.1**.

4.1.5 BIOS Menu Bar

The menu bar on top of the BIOS screen has the following main items:

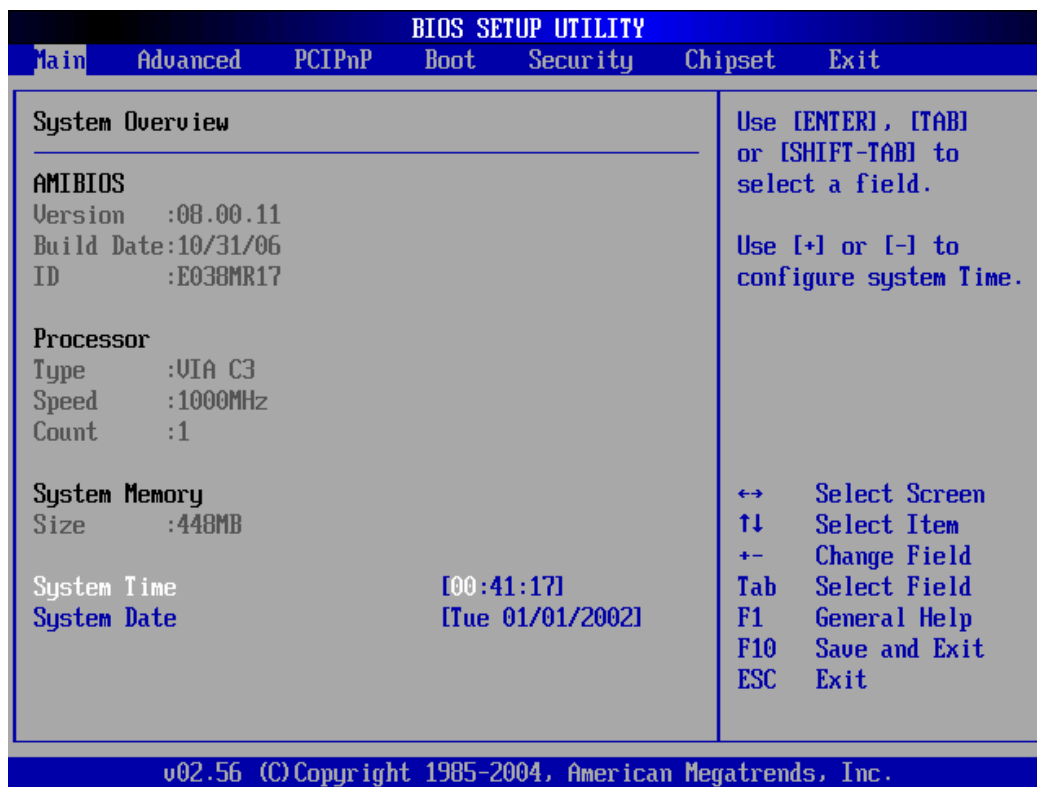
- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.



4.2 Main

When entering the **BIOS Setup** program, the **Main** menu (**BIOS Menu 1**) appears. The **Main** menu gives overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The System Overview lists a brief summary of different system components. The fields in System Overview cannot be changed. The items shown in the system overview include:

- **AMI BIOS:** Displays auto-detected BIOS information
 - **Version:** Current BIOS version
 - **Build Date:** Date the current BIOS version was made
 - **ID:** Installed BIOS ID



- **Processor:** Displays auto-detected CPU specifications
 - **Type:** Names the currently installed processor
 - **Speed:** Lists the processor speed
 - **Count:** The number of CPUs on the FIR-3730
- **System Memory:** Displays the auto-detected system memory.
 - **Size:** Lists memory size

The **System Overview** field also has two user configurable fields:

- **System Time [xx:xx:xx]:** Allows system time to be set.
- **System Date [Day xx/xx/xxxx]:** Allows the system date to be set.

4.3 Advanced

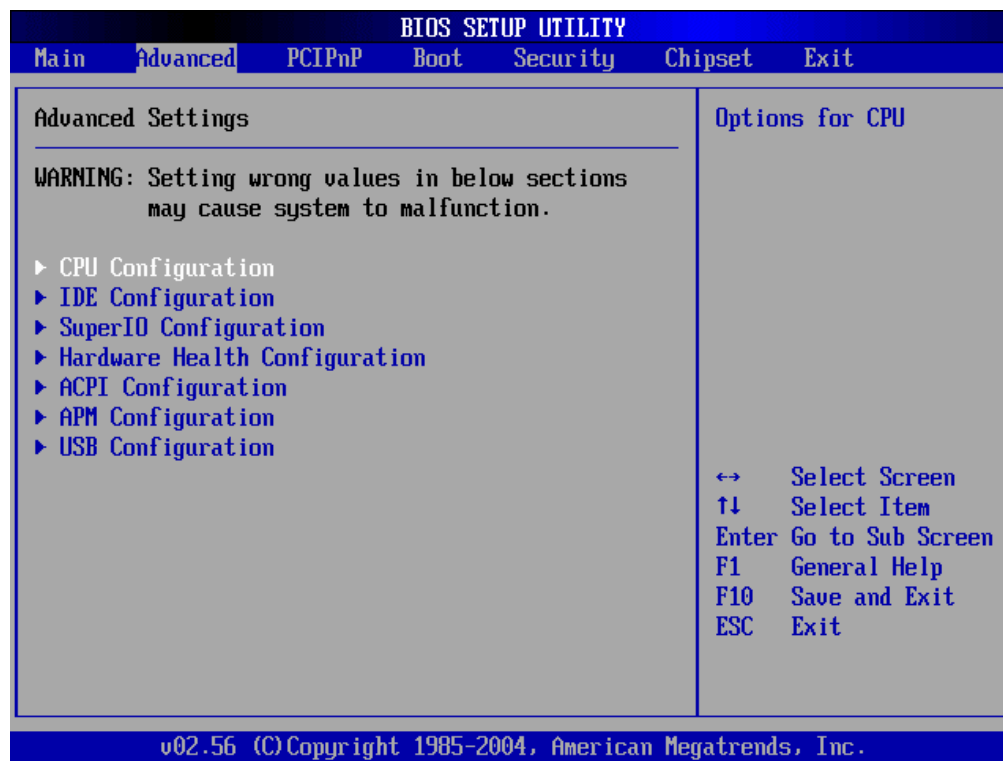
The **Advanced** menu (**BIOS Menu 2**) allows CPU and peripheral device configuration options to be accessed through the following sub-menus:



WARNING:

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings are compatible with the system hardware.

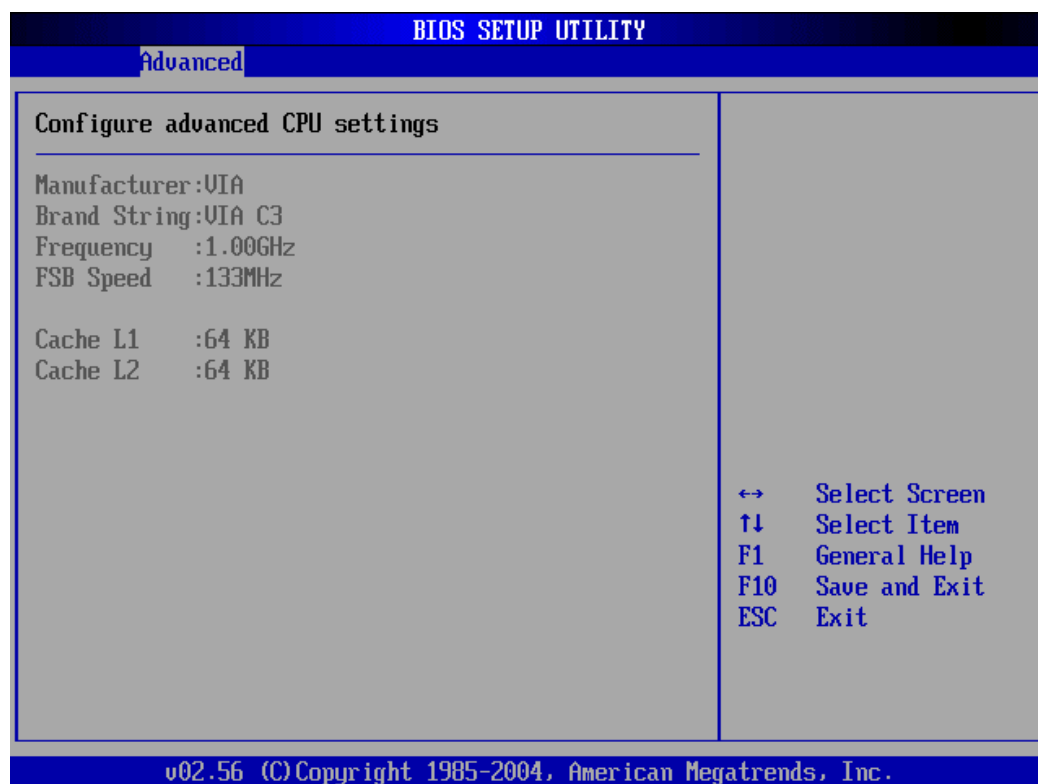
- CPU Configuration (see Section 4.3.1)
- IDE Configuration (see Section 4.3.2)
- SuperIO Configuration (see Section 4.3.3)
- Hardware Health Configuration (see Section 4.3.4)
- ACPI Configuration (see Section 4.3.5)
- APM Configuration (see Section 4.3.6)
- USB Configuration (see Section 4.3.7)



BIOS Menu 2: Advanced

4.3.1 CPU Configuration

The **CPU Configuration** menu (**BIOS Menu 3**) shows detailed CPU specifications.



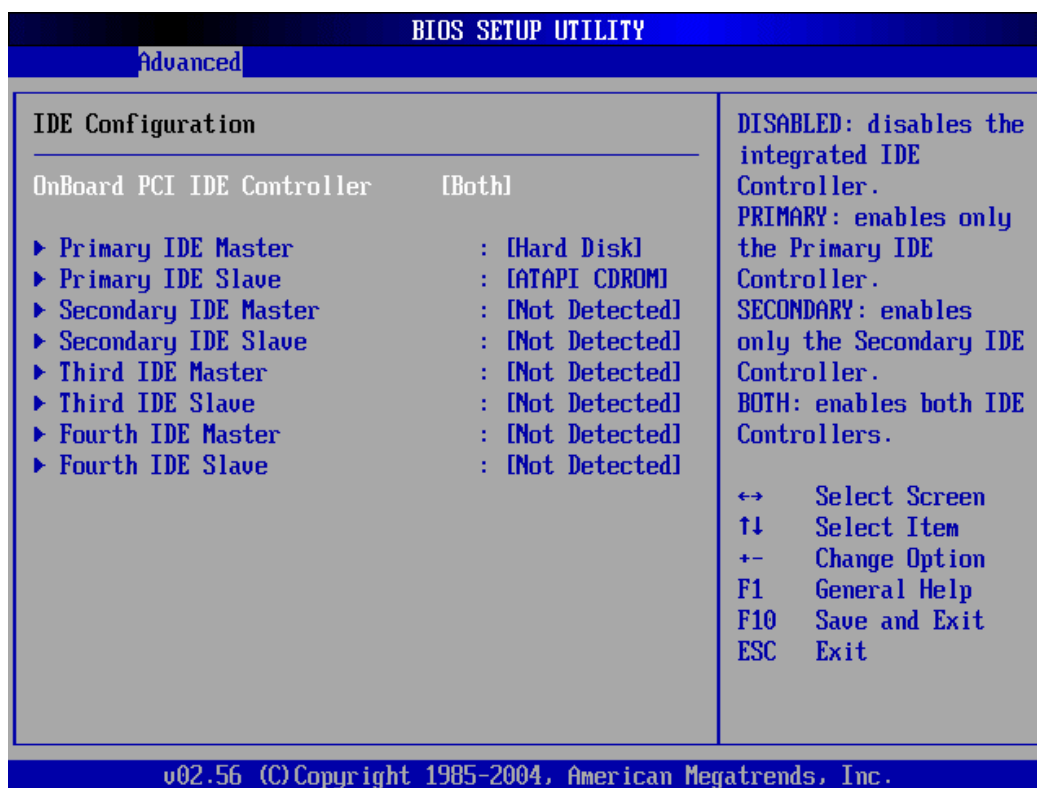
BIOS Menu 3: CPU Configuration

The **CPU Configuration** menu (**BIOS Menu 3**) lists the following CPU details:

- **Manufacturer:** Lists the name of the CPU manufacturer
- **Brand String:** Lists the brand name of the CPU being used
- **Frequency:** Lists the CPU processing speed
- **FSB Speed:** Lists the FSB speed
- **Cache L1:** Lists the CPU L1 cache size
- **Cache L2:** Lists the CPU L2 cache size (which in this case is zero)

4.3.2 IDE Configuration

The **IDE Configuration** menu (**BIOS Menu 4**) IDE devices installed in the system to be user configured.



BIOS Menu 4: IDE Configuration

➔ OnBoard PCI IDE Controller [Both]

The **OnBoard PCI IDE Controller** BIOS option specifies the IDE channels used by the onboard PCI IDE controller. The following configuration options are available.

- ➔ **Disabled** Prevents the system from using the onboard IDE controller
- ➔ **Primary** Only allows the system to detect the Primary IDE channel, including both the Primary Master and Primary Slave)
- ➔ **Secondary** Only allows the system to detect the Secondary IDE channel, including both the Secondary Master and



Secondary Slave)

- **Both** (Default) Allows the system to detect both the Primary and Secondary IDE channels including the Primary Master, Primary Slave, Secondary Master and Secondary Slave.

→ IDE Master and IDE Slave

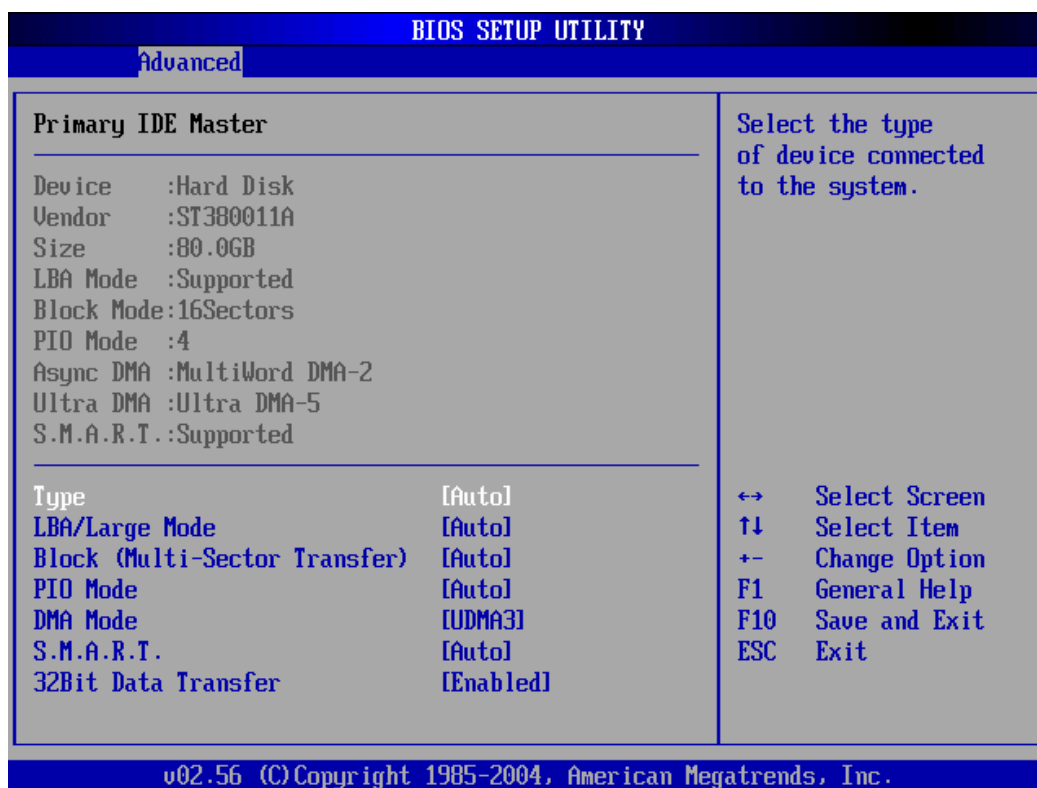
When entering setup, BIOS auto detects the presence of IDE devices. This displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the IDE Configuration menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave
- Third IDE Master
- Third IDE Slave
- Fourth IDE Master
- Fourth IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) changes the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 4.3.2.1** appear.

4.3.2.1 IDE Master, IDE Slave

IDE Master and IDE Slave configuration options for both primary and secondary IDE devices are shown in the BIOS menu below.



BIOS Menu 5: IDE Master and IDE Slave Configuration

→ Auto-Detected Drive Parameters

The “grayed-out” items in the left frame are IDE disk drive parameters automatically detected from the firmware of the selected IDE disk drive. The drive parameters are listed as follows:

- **Device:** Lists the device type (e.g. hard disk, CD-ROM etc.)
- **Vendor:** Lists the device manufacturer
- **Size:** The size of the device.
- **LBA Mode:** Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- **Block Mode:** Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.



- **PIO Mode:** Indicates the PIO mode of the installed device.
- **Async DMA:** Indicates the highest Asynchronous DMA Mode that is supported.
- **Ultra DMA:** Indicates the highest Synchronous DMA Mode that is supported.
- **S.M.A.R.T.:** Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.

→ **Type [Auto]**

The **Type** BIOS option determines the type of device that the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) has completed.

- **Not Installed** Selecting this value prevents the BIOS from searching for an IDE disk drive on the specified channel.
- **Auto** (Default) This selection enables the BIOS to auto detect the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.
- **CD/DVD** The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.
- **ARMD** This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

→ **ZIP**

→ **LS-120**

→ **LBA/Large Mode [Auto]**



The **LBA/Large Mode** BIOS option disables or auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** This selection prevents the BIOS from using the LBA mode control on the specified channel.

➔ **Auto** (Default) This option allows the BIOS to auto detect the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

➔ **Disabled** Selecting this option prevents the BIOS from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** (Default) Selecting this value to allows the BIOS to auto detect the device support for Multi-Sector Transfers on the specified channel. If supported. Select this value to allow the BIOS to auto detect the number of sectors per block for transfer from the hard disk drive to the memory. The data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

The **PIO Mode** option selects the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto** (Default) This setting allows the BIOS to auto detect the PIO mode. Use this value if the IDE disk drive support cannot be determined.

➔ **0** PIO mode 0 selected with a maximum transfer rate of 3.3MBps



- ➔ 1 PIO mode 1 selected with a maximum transfer rate of 5.2MBps
 - ➔ 2 PIO mode 2 selected with a maximum transfer rate of 8.3MBps
 - ➔ 3 PIO mode 3 selected with a maximum transfer rate of 11.1MBps
 - ➔ 4 PIO mode 4 selected with a maximum transfer rate of 16.6MBps
- (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [UDMA3]**

The **DMA Mode** BIOS selection adjusts the DMA mode options.

- ➔ **Auto** (Default) The BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
- ➔ **SWDMA0** Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1MBps
- ➔ **SWDMA1** Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2MBps
- ➔ **SWDMA2** Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3MBps
- ➔ **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2MBps
- ➔ **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3MBps
- ➔ **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6MBps



- ➔ **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6MBps
- ➔ **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25MBps
- ➔ **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3MBps
- ➔ **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9MBps (To use this mode, it is required that an 80-conductor ATA cable is used.)

- ➔ **S.M.A.R.T [Auto]**

Self-Monitoring Analysis and Reporting Technology (**SMART**) feature can help predict impending drive failures. The S.M.A.R.T BIOS option enables or disable this function.

 - ➔ **Auto** (Default) BIOS to auto detects if the hard disk drive supports S.M.A.R.T. Use this setting if the IDE disk drive support cannot be determined.
 - ➔ **Disabled** Select this value to prevent the BIOS from using the SMART feature.
 - ➔ **Enabled** Select this value to allow the BIOS to use the SMART



feature on support hard disk drives.

→ 32Bit Data Transfer [Enabled]

The **32Bit Data Transfer** BIOS option enables or disables 32-bit data transfers.

- **Disabled** Prevents the BIOS from using 32-bit data transfers.
- **Enabled** (Default) Allows BIOS to use 32-bit data transfers on support hard disk drives.

4.3.3 Super IO Configuration

The **Super IO Configuration** menu (**BIOS Menu 6**) sets or changes the configurations for the parallel ports and serial ports.

BIOS SETUP UTILITY	
Advanced	
Configure Win697 Super IO Chipset	
Serial Port1 Address	[3F8/IRQ4]
Serial Port1 Power Select	[RI#]
Serial Port2 Address	[2F8/IRQ3]
Serial Port2 Mode	[Normal]
Serial Port2 Power Select	[RI#]
Parallel Port Address	[378]
Parallel Port Mode	[Normal]
Parallel Port IRQ	[IRQ7]
Allows BIOS to Select Serial Port1 Base Addresses.	
↔ Select Screen	
↑↓ Select Item	
+- Change Option	
F1 General Help	
F10 Save and Exit	
ESC Exit	
v02.56 (C) Copyright 1985-2004, American Megatrends, Inc.	

BIOS Menu 6: Super IO Configuration



→ **Serial Port1 Address [3F8/IRQ4]**

The **Serial Port1 Address** option allows BIOS to select the Serial Port 1 base address.

- **Disabled** No base address is assigned to Serial Port 1
- **3F8/IRQ4** (Default) Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
- **2F8/IRQ3** Serial Port 1 I/O port address is 2F8 and the interrupt address is IRQ3
- **3E8/IRQ4** Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
- **2E8/IRQ3** Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

→ **Serial Port2 Address [2F8/IRQ3]**

The **Serial Port2 Address** option allows BIOS to select the Serial Port 2 base address.

- **Disabled** No base address is assigned to Serial Port 2
- **2F8/IRQ3** (Default) Serial Port 2 I/O port address is 2F8 and the interrupt address is IRQ3
- **3E8/IRQ4** Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4
- **2E8/IRQ3** Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

→ **Serial Port2 Mode [Normal]**

Allows BIOS to select the mode for Serial Port 2



- ➔ **Normal** (Default) Serial Port 2 mode is normal
- ➔ **IrDA** Serial Port 2 mode is IrDA
- ➔ **ASK IR** Serial Port 2 mode is ASK IR

➔ **Parallel Port Address [378]**

The **Parallel Port Address** BIOS option assigns the I/O port address of the parallel port.

The following address options are available:

- ➔ **Disabled** No I/O port address is assigned to the parallel port
- ➔ **378** (Default) Parallel Port I/O port address is 378
- ➔ **278** Parallel Port I/O port address is 278
- ➔ **3BC** Parallel Port I/O port address is 3BC

➔ **Parallel Port Mode [Normal]**

The **Parallel Port Mode** BIOS options selects the mode the parallel port operates in.

- ➔ **Normal** (Default) The normal parallel port mode is the standard mode for parallel port operation.
- ➔ **Bi-Directional** Bi-Directional parallel port is able to receive 8 lines of data into the computer.
- ➔ **EPP** The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode.



➔ **ECP+EPP**

The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode

The parallel port becomes compatible with EPP devices described above

➔ **Parallel Port IRQ [IRQ7]**

The **Parallel Port Address** BIOS option assigns the parallel port interrupt address. The following address options are available.

➔ **IRQ5** Parallel port interrupt address is IRQ5

➔ **IRQ7** (Default) Parallel port interrupt address is IRQ7

4.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 7**) shows the configuration for the H/W Health Function and shows the operating temperature and system voltages.



BIOS Menu 7: Hardware Health Configuration

If the **H/W Health Function** is enabled different system parameters and values are shown.

The following hardware health parameters are monitored.

- **System Temperatures:** The following system temperature is monitored

- CPU Temperature

- **Fan Speeds:** The CPU cooling fan speed is monitored.

CPU Fan Speed

- **Voltages:** The following system voltages are monitored

- Vcore

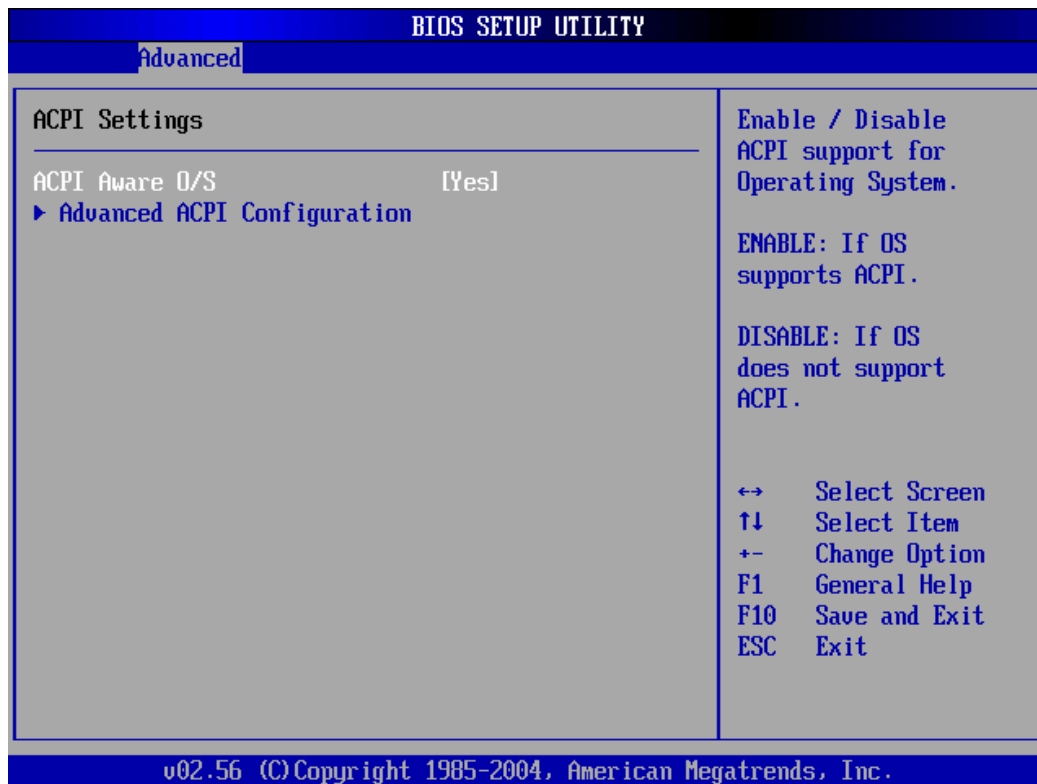
- +3.3Vin

- +5Vin

4.3.5 ACPI Configuration



The **ACPI Configuration** menu (**BIOS Menu 8**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.



BIOS Menu 8: ACPI Configuration

➔ **ACPI Aware O/S [Yes]**

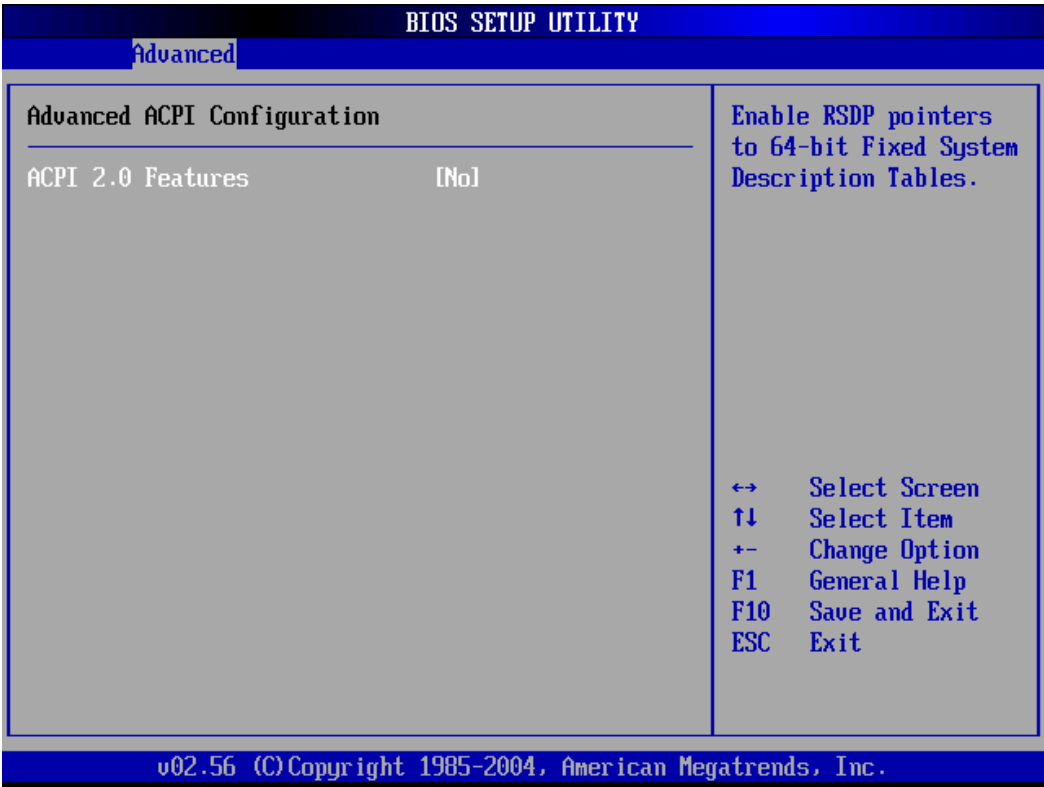
Use the **ACPI Aware O/S** option to enable the system to configure ACPI power saving options. ACPI can only be implemented if the system OS complies with the ACPI standard. Windows 98, Windows 2000, and Windows XP all comply with ACPI.

- ➔ **No** Disables the ACPI support for the OS. This selection should be disabled if the OS does not support ACPI
- ➔ **Yes (Default)** Enables the ACPI support for the operating system. This selection should be enabled if the OS does support ACPI



4.3.5.1 Advanced ACPI Configuration

The **Advanced ACPI Configuration** menu (**BIOS Menu 9**) selects the ACPI state when the system is suspended.



BIOS Menu 9: Advanced ACPI Configuration

➔ **ACPI 2.0 Features [No]**

The **ACPI 2.0 Features** BIOS enables the ACPI (Advanced Configuration and Power Interface) features. If enabled the system RSDP (Root System Description Pointer) can obtain physical addresses for other 64-bit fixed system description tables.

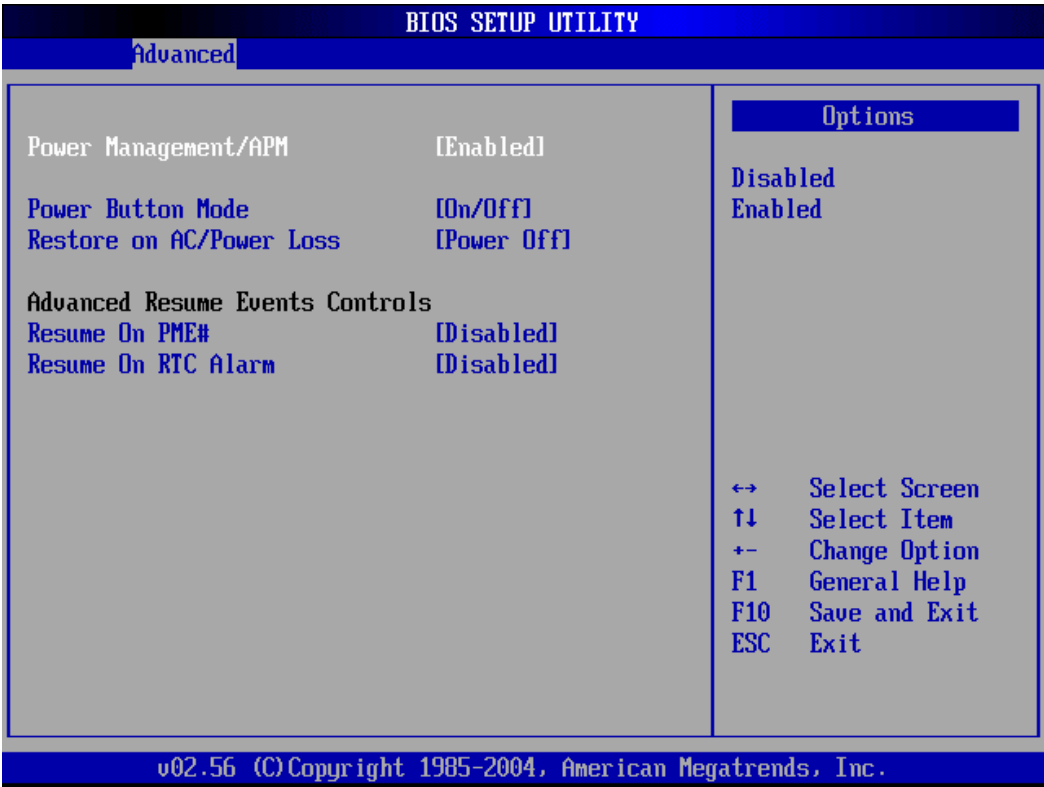
- ➔ **No** (Default) RSDP pointers to 64-bit fixed systems are not provided to the system
- ➔ **Yes** RSDP pointers to 64-bit fixed systems are provided to the



system

4.3.6 APM Configuration

The **APM Configuration** menu (**BIOS Menu 10**) configures advanced power management options.



BIOS Menu 10:Power

➔ **Power Management/APM [Enabled]**

The **Power Management/APM** BIOS option provides access the advanced power management features.

- ➔ **Disabled** Disables the Advanced Power Management (APM) feature



→ **Enabled** (Default) Enables the APM feature

→ **Power Button Mode [On/Off]**

The **Power Button Mode** BIOS option specifies how the power button functions.

→ **On/Off** (Default) When the power button is pressed the system is either turned on or off

→ **Standby** When the power button is pressed the system goes into standby mode

→ **Suspend** When the power button is pressed the system goes into suspend mode

→ **Restore on AC/Power Loss [Power Off]**

The **Restore on AC/Power Loss** BIOS option specifies what state the system returns to if there is a sudden loss of power to the system.

→ **Power Off** (Default) The system remains turned off

→ **Power On** The system turns on

→ **Last State** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

→ **Resume on PME# [Disabled]**

The **Resume on PME#** BIOS option specifies if the system is roused from a suspended or standby state when there is activity on the PCI PME (power management event) controller.

→ **Disabled** (Default) Wake event not generated by PCI PME controller activity



➔ **Enabled** Wake event generated by PCI PME controller activity

➔ **Resume On RTC Alarm [Disabled]**

The **Resume On RTC Alarm** determines when the computer is roused from a suspended state.

➔ **Disabled** (Default) The real time clock (RTC) cannot generate a wake event

➔ **Enabled** If selected, the following appears with values that can be selected:

➔ **RTC Alarm Date (Days)**

➔ **System Time**

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

4.3.7 USB Configuration

The **USB Configuration** menu (**BIOS Menu 11**) gives information on the USB configuration and allows some USB features to be configured.



BIOS Menu 11: USB Configuration

→ USB Configuration

The USB Configuration field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

→ USB Devices Enabled:

Lists the USB devices that are enabled on the system.

→ USB 1.1 Ports Configuration [USB 8 Ports]

The **USB Ports Configuration** BIOS option specifies how many of the USB ports are USB 1.1 compatible.

- **Disabled** None of the ports are USB 1.1 compatible



- ➔ **USB 2 Ports** Two ports are USB 1.1 compatible
- ➔ **USB 4 ports** Four ports are USB 1.1 compatible
- ➔ **USB 6 ports** Six ports are USB 1.1 compatible
- ➔ **USB 8 ports** (Default) Eight ports are USB 1.1 compatible

➔ **USB 2.0 Ports Enable [Enabled]**

The **USB 2.0 Ports** BIOS option enables or disables the USB 2.0 controller

- ➔ **Disabled** USB 2.0 function disabled
- ➔ **Enabled** (Default) USB 2.0 function enabled

➔ **Legacy USB Support [Enabled]**

The **Legacy USB Support** BIOS option refers to USB mouse and USB keyboard support. Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded on the system.

- ➔ **Disabled** Legacy USB support disabled
- ➔ **Enabled** (Default) Legacy USB support enabled

➔ **USB2.0 Controller Mode [HiSpeed]**

The **USB2.0 Controller Mode** BIOS option sets the speed of the USB2.0 controller.

- ➔ **FullSpeed** The controller is capable of operating at full speed (12Mbps/second)
- ➔ **HiSpeed** (Default) The controller is capable of operating at high speed



(480Mbits/second)

4.3.7.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (**BIOS Menu 12**) to configure USB mass storage class devices.



BIOS Menu 12: USB Mass Storage Device Configuration

→ USB Mass Storage Reset Delay [20 Sec]

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST waits for the USB mass storage device after the start unit command.

- **10 Sec** POST waits 10 seconds for the USB mass storage device after the start unit command.



- **20 Sec** (Default) POST waits 20 seconds for the USB mass storage device after the start unit command.
- **30 Sec** POST waits 30 seconds for the USB mass storage device after the start unit command.
- **40 Sec** POST waits 40 seconds for the USB mass storage device after the start unit command.

→ **Device ##**

The **Device##** field lists the USB devices that are connected to the system.

→ **Emulation Type [Auto]**

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.



NOTE:

Please note that the device's formatted type and the emulation type provided by the BIOS must match for a device to boot properly. If both types do not match then device's behavior is undefined. To make sure both types match, format the device using BIOS INT13h calls after selecting the proper emulation option in BIOS setup. The FORMAT utility provided by Microsoft® MS-DOS®, Microsoft® Windows® 95, and Microsoft® Windows® 98 can be used for this purpose.

-
- **Auto** (Default) BIOS auto-detects the current USB.
 - **Floppy** The USB device will be emulated as a floppy drive.
The device can be either A: or B: responding to



INT13h calls that return DL = 0 or DL = 1 respectively.

➔ **Forced FDD**

Allows a hard disk image to be connected as a floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32.

➔ **Hard Disk**

Allows the USB device to be emulated as hard disk responding to INT13h calls that return DL values of 80h or above.

➔ **CDROM**

Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option.

4.4 PCI/PnP

The **PCI/PnP** menu (**BIOS Menu 13**) configures advanced PCI and PnP settings.



WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause system malfunctions.



BIOS SETUP UTILITY		
Main	Advanced	PCIPnP
<div> <div> Advanced PCI/PnP Settings </div> <div> <div> WARNING: Setting wrong values in below sections may cause system to malfunction. </div> <div> <div> Clear NURAM [No] </div> <div> Plug & Play O/S [No] </div> <div> PCI Latency Timer [64] </div> <div> Allocate IRQ to PCI VGA [Yes] </div> <div> Palette Snooping [Disabled] </div> <div> PCI IDE BusMaster [Enabled] </div> <div> OffBoard PCI/ISA IDE Card [Auto] </div> <div> <div> IRQ3 [Available] </div> <div> IRQ4 [Available] </div> <div> IRQ5 [Available] </div> <div> IRQ7 [Available] </div> <div> IRQ9 [Available] </div> <div> IRQ10 [Available] </div> <div> IRQ11 [Available] </div> </div> <div> <div> Clear NURAM during System Boot. </div> <div> <div> ↔ Select Screen </div> <div> ↑↓ Select Item </div> <div> +- Change Option </div> <div> F1 General Help </div> <div> F10 Save and Exit </div> <div> ESC Exit </div> </div> </div> </div> </div> </div>		

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BIOS Menu 13: PCI/PnP Configuration [Part 1]

BIOS SETUP UTILITY		
Main	Advanced	PCIPnP
<div> <div> OffBoard PCI/ISA IDE Card [Auto] </div> <div> <div> IRQ3 [Available] </div> <div> IRQ4 [Available] </div> <div> IRQ5 [Available] </div> <div> IRQ7 [Available] </div> <div> IRQ9 [Available] </div> <div> IRQ10 [Available] </div> <div> IRQ11 [Available] </div> <div> IRQ14 [Available] </div> <div> IRQ15 [Available] </div> <div> <div> DMA Channel 0 [Available] </div> <div> DMA Channel 1 [Available] </div> <div> DMA Channel 3 [Available] </div> <div> DMA Channel 5 [Available] </div> <div> DMA Channel 6 [Available] </div> <div> DMA Channel 7 [Available] </div> <div> Reserved Memory Size [Disabled] </div> </div> <div> <div> Size of memory block to reserve for legacy ISA devices. </div> <div> <div> ↔ Select Screen </div> <div> ↑↓ Select Item </div> <div> +- Change Option </div> <div> F1 General Help </div> <div> F10 Save and Exit </div> <div> ESC Exit </div> </div> </div> </div> </div>		

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BIOS Menu 14: PCI/PnP Configuration [Part 2]



→ **Clear NVRAM [No]**

The **Clear NVRAM** specifies whether the contents of the NVRAM (Non-Volatile RAM) when the power is turned off.

- **No** (Default) System does not clear NVRAM during system boot
- **Yes** System clears NVRAM during system boot

→ **Plug & Play O/S [No]**

The **Plug & Play O/S** BIOS determines whether the Plug and Play devices connected to the system are configured by the operating system or the BIOS.

- **No** (Default) If the operating system does not meet the Plug and Play specifications, this option allows the BIOS to configure all the devices in the system.
- **Yes** This setting allows the operating system to change the interrupt, I/O, and DMA settings. Set this option if the system is running Plug and Play aware operating systems.

→ **PCI Latency Timer [64]**

The values stipulated in the **PCI Latency Timer** are in units of PCI clock cycles for the PCI device latency timer register. Configuration options are:

- 32
- 64 (Default)
- 96
- 128
- 160
- 192
- 224
- 248



→ **Allocate IRQ to PCI VGA [Yes]**

The **Allocate IRQ to PCI VGA** restricts the system from giving the VGA adapter card an interrupt address.

- **Yes** (Default) Assigns an IRQ to a PCI VGA card if card requests IRQ
- **No** Does not assign IRQ to a PCI VGA card even if the card requests an IRQ

→ **Palette Snooping [Disabled]**

The **Palette Snooping** enables or disables the palette snooping function.

- **Disabled** (Default) Unless the VGA card manufacturer requires palette snooping to be enabled, this option should be disabled.
- **No** PCI devices are informed that an ISA based Graphics device is installed in the system so the ISA based Graphics card functions correctly. This does not necessarily indicate a physical ISA adapter card. The graphics chipset can be mounted on a PCI card. Always check with the adapter card manual first, before modifying the default settings in the BIOS.

→ **PCI IDE BusMaster [Enabled]**

The **PCI IDE BusMaster** BIOS option enables or prevents the use of PCI IDE busmastering.

- **Disabled** Busmastering is prevented



- ➔ **Enabled** (Default) IDE controller on the PCI local bus has mastering capabilities

➔ **OffBoard PCI/ISA IDE Card [Auto]**

The **OffBoard PCI/ISA IDE Card** BIOS option selects the OffBoard PCI/ISA IDE Card.

- ➔ **Auto** (Default) The location of the Off Board PCI IDE adapter card is automatically detected by the AMIBIOS.
- ➔ **PCI Slot 1** PCI Slot 1 is selected as the location of the OffBoard PCI IDE adapter card. Only select this slot if the adapter card is installed in PCI Slot 1.
- ➔ **PCI Slot 2** PCI Slot 2 is selected as the location of the OffBoard PCI IDE adapter card. Only select this slot if the adapter card is installed in PCI Slot 2.
- ➔ **PCI Slot 3** PCI Slot 3 is selected as the location of the OffBoard PCI IDE adapter card. Only select this slot if the adapter card is installed in PCI Slot 3.
- ➔ **PCI Slot 4** PCI Slot 4 is selected as the location of the OffBoard PCI IDE adapter card. Only select this slot if the adapter card is installed in PCI Slot 4.
- ➔ **PCI Slot 5** PCI Slot 5 is selected as the location of the OffBoard PCI IDE adapter card. Only select this slot if the adapter card is installed in PCI Slot 5.
- ➔ **PCI Slot 6** PCI Slot 6 is selected as the location of the OffBoard PCI IDE adapter card. Only select this slot if the



adapter card is installed in PCI Slot 6.

→ **IRQ# [Available]**

- **Available** (Default) The specified IRQ is available to be used by PCI/PnP devices
- **Reserved** The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

→ **DMA Channel# [Available]**

- **Available** (Default) The specified DMA is available to be used by PCI/PnP devices
- **Reserved** The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3
- DM Channel 5



- DM Channel 6
- DM Channel 7

➔ **Reserved Memory Size [Disabled]**

The **Reserved Memory Size** BIOS option specifies the amount of memory that should be reserved for legacy ISA devices.

- | | | | |
|---|-----------------|-----------|---|
| ➔ | Disabled | (Default) | No memory block reserved for legacy ISA devices |
| ➔ | 16K | | 16KB reserved for legacy ISA devices |
| ➔ | 32K | | 32KB reserved for legacy ISA devices |
| ➔ | 64K | | 54KB reserved for legacy ISA devices |

4.5 Boot

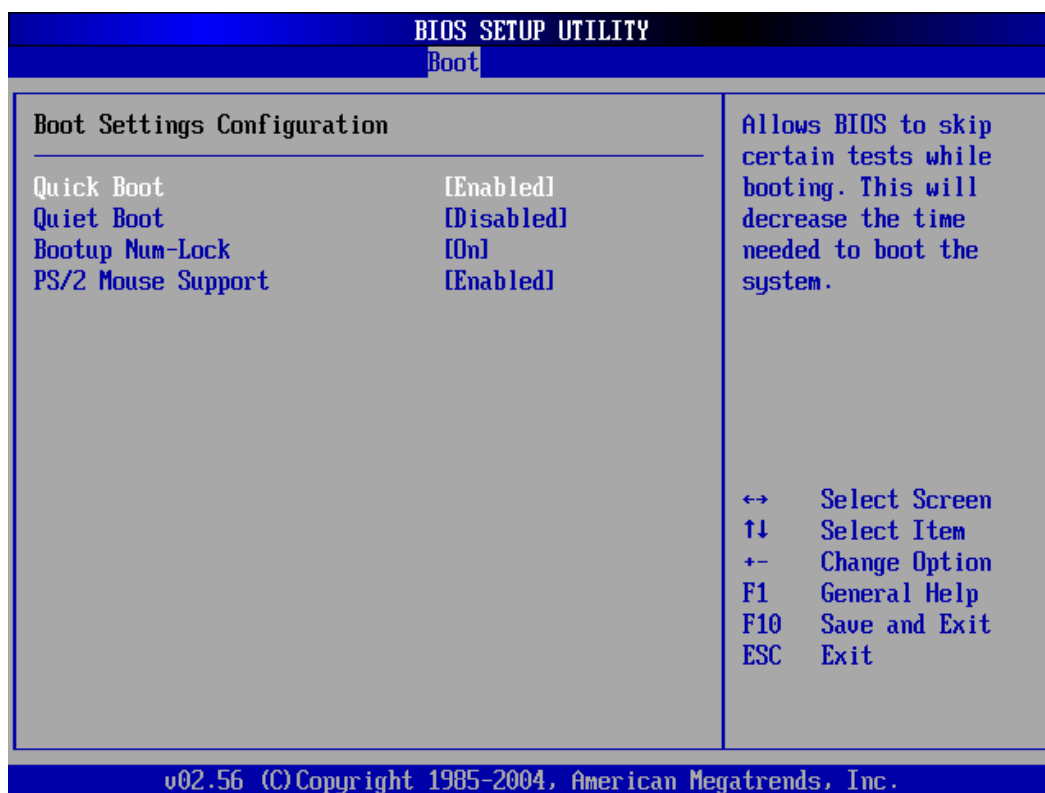
The **Boot** menu (**BIOS Menu 15**) configures system boot options.



BIOS Menu 15: Boot

4.5.1 Boot Settings Configuration

The **Boot Settings Configuration** menu (**BIOS Menu 16**) configures advanced system boot options.



BIOS Menu 16: Boot Settings Configuration

→ Quick Boot [Enabled]

The **Quick Boot** BIOS option speeds up the boot process.

- **Disabled** System does not skip any POST procedures
- **Enabled** (Default) Allows system to skip some POST procedures to decrease the system boot time

→ Quiet Boot [Disabled]

The **Quiet Boot** BIOS option allows the boot up screen options to be modified between POST messages or an OEM logo.

- **Disabled** (Default) Displays normal POST messages



➔ **Enabled** Displays OEM Logo instead of POST messages

➔ **Bootup Num-Lock [On]**

The **Bootup Num-Lock** BIOS option allows the Number Lock setting to be modified during boot up.

➔ **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **On (Default)** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **PS/2 Mouse Support [Enabled]**

The **PS/2 Mouse Support** BIOS option allows the PS/2 mouse support to be adjusted.

➔ **Disabled** Disables PS/2 mouse support and prevents the PS/2 mouse port from using system resources.

➔ **Enabled (Default)** Allows the system to use a PS/2 mouse.

➔ **Auto** Allows the system to automatically detect if a PS/2 mouse is being used.



4.5.2 Boot Device Priority

The **Boot Device Priority** menu (**BIOS Menu 17**) specifies the boot sequence from the available devices. Possible boot devices may include:

- HDD
- CD/DVD



BIOS Menu 17: Boot Device Priority

4.5.3 Hard Disk Drives

The **Hard Disk Drives** menu is similar to the **Removable Drives BIOS Menu 18** and it specifies the boot sequence of the available HDDs. When the menu is opened, the HDDs connected to the system are listed as shown below:

- 1st Drive [HDD: PM-(part number)]



- 2nd Drive [HDD: PS-(part number)]
- 3rd Drive [HDD: SM-(part number)]
- 4th Drive [HDD: SM-(part number)]



NOTE:

Only the drives connected to the system are not shown. For example, if only two HDDs are connected only “**1st Drive**” and “**2nd Drive**” are listed.

The boot sequence can be selected from the available devices. If the “**1st Drive**” option is selected a list of available HDDs are shown. Select the first HDD you wish the system to boot from. If system does not boot from the “**1st Drive**” it may also disabled.

4.5.4 Removable Drives

The **Removable Drives** menu (**BIOS Menu 18**) specifies the boot sequence of the available removable drives. When the menu is opened, the removable drives connected to the system are listed as shown below:

- 1st Drive [Drive Details]
- 2nd Drive [Drive Details]



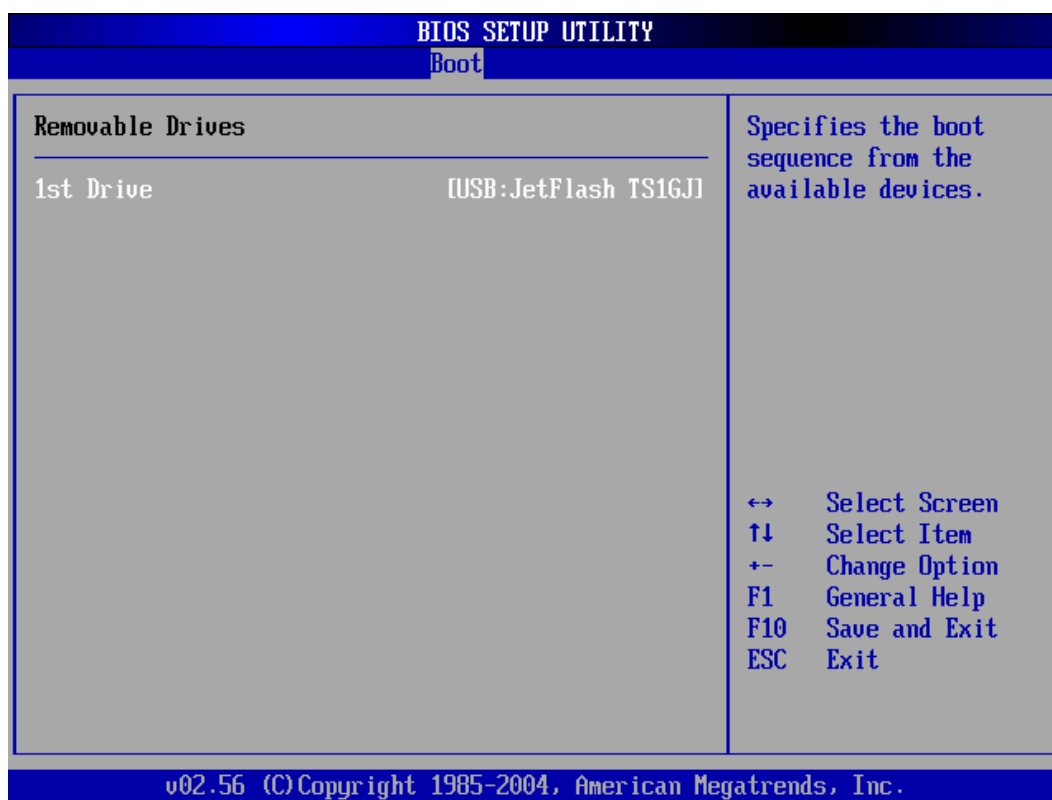
NOTE:

Only the drives connected to the system are shown. For example, if only one removable drive is connected only “**1st Drive**” is listed.

The boot sequence from the available devices is selected. If “**1st Drive**” option is selected a list of available removable drives are shown. Select the first removable drive the system is to boot from. If system does not boot from the “**1st Drive**” it may also disabled.



There is no floppy disk function on the FIR-3730. The removable drives that may be listed include USB drives.



BIOS Menu 18: Removable Drives



4.5.5 CD/DVD Drives

The CD/DVD Drives menu is similar to the **Removable Drives BIOS Menu 18** and it specifies the boot sequence of the available CD/DVD drives. When the menu is opened, the CD drives and DVD drives connected to the system are listed as shown below:

- | | |
|-------------|------------------------|
| ■ 1st Drive | [CD/DVD: PM-(part ID)] |
| ■ 2nd Drive | [HDD: PS-(part ID)] |
| ■ 3rd Drive | [HDD: SM-(part ID)] |
| ■ 4th Drive | [HDD: SM-(part ID)] |
-



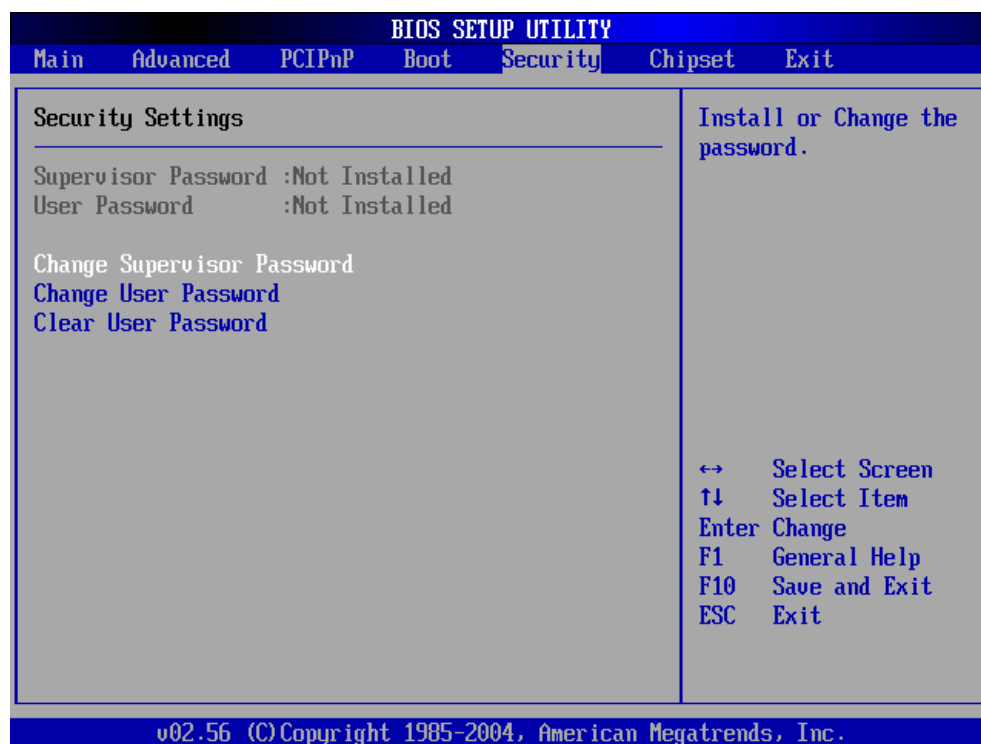
NOTE:

Only the drives connected to the system are shown. For example, if only two CDs or DVDs are connected only **“1st Drive”** and **“2nd Drive”** are listed.

Select the boot sequence from the available devices. If the **“1st Drive”** option is selected, a list of available HDDs are shown. Select the first HDD the system is to boot from. If system does not boot from the **“1st Drive”** it may also disabled.

4.6 Security

The **Security** menu (**BIOS Menu 19**) allows you to configure the system security settings including passwords.



BIOS Menu 19: Security

➔ Change Supervisor Password

The default setting for the **Change Supervisor Password** is **Not Installed**. If you wish to install a supervisor password, select this field and enter the password. After the password has been added, a **User Access Level** option and a **Password Check** option appear.

➔ Change User Password

The default setting for the Change User Password is Not Installed. If you wish to install a user password, select this field and enter the password. After the password has been added, Install appears next to Change User Password.

➔ Clear User Password

If you wish to clear user password, choose the **Clear User Password** option and press **Enter** to immediately clear the user password.



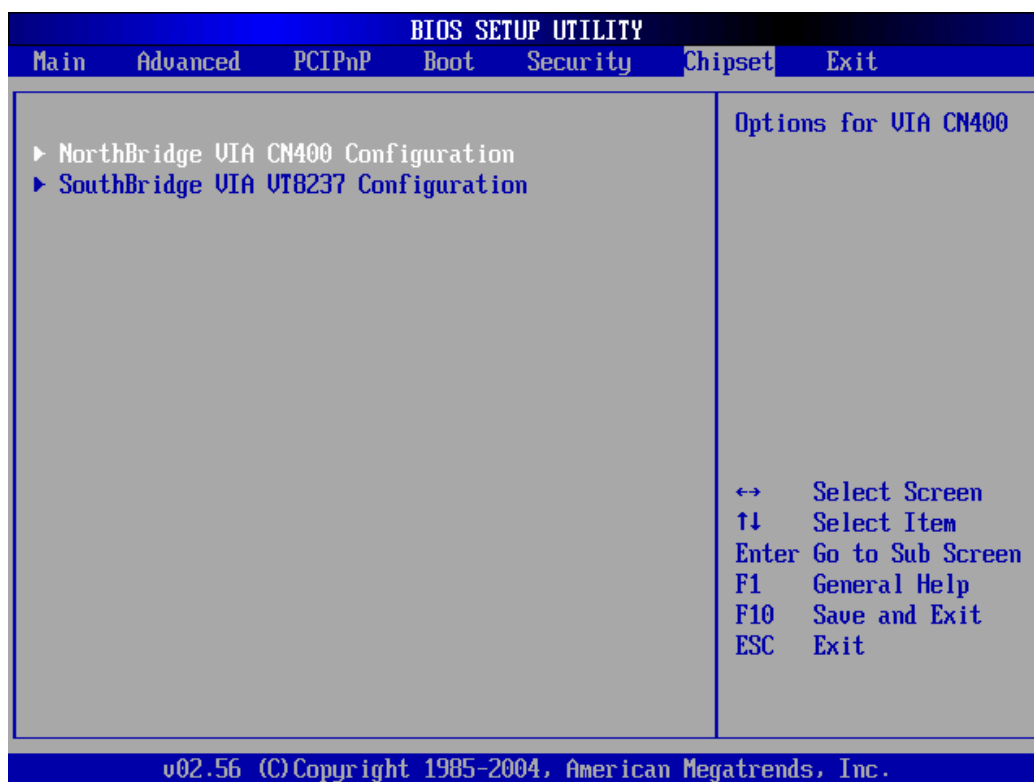
4.7 Chipset

The **Chipset** menu (**BIOS Menu 20**) has two sub-menus, Northbridge VIA CN400 Configuration and Southbridge VIA VT8237 Configuration. The Northbridge submenu configures the Northbridge chipset and the Southbridge submenu configures the Southbridge chipset.



WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

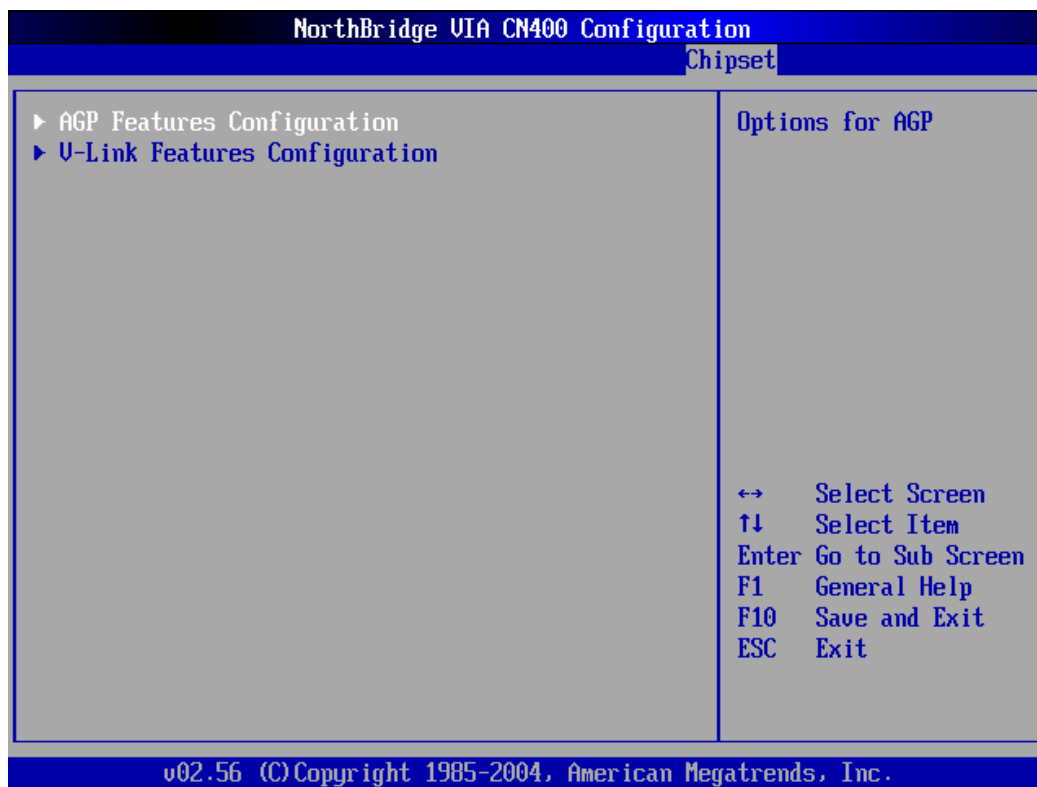


BIOS Menu 20: Chipset



4.7.1 Northbridge VIA CN400 Configuration

The **Northbridge VIA CN400 Configuration** menu (**BIOS Menu 21**) configures the Northbridge chipset.



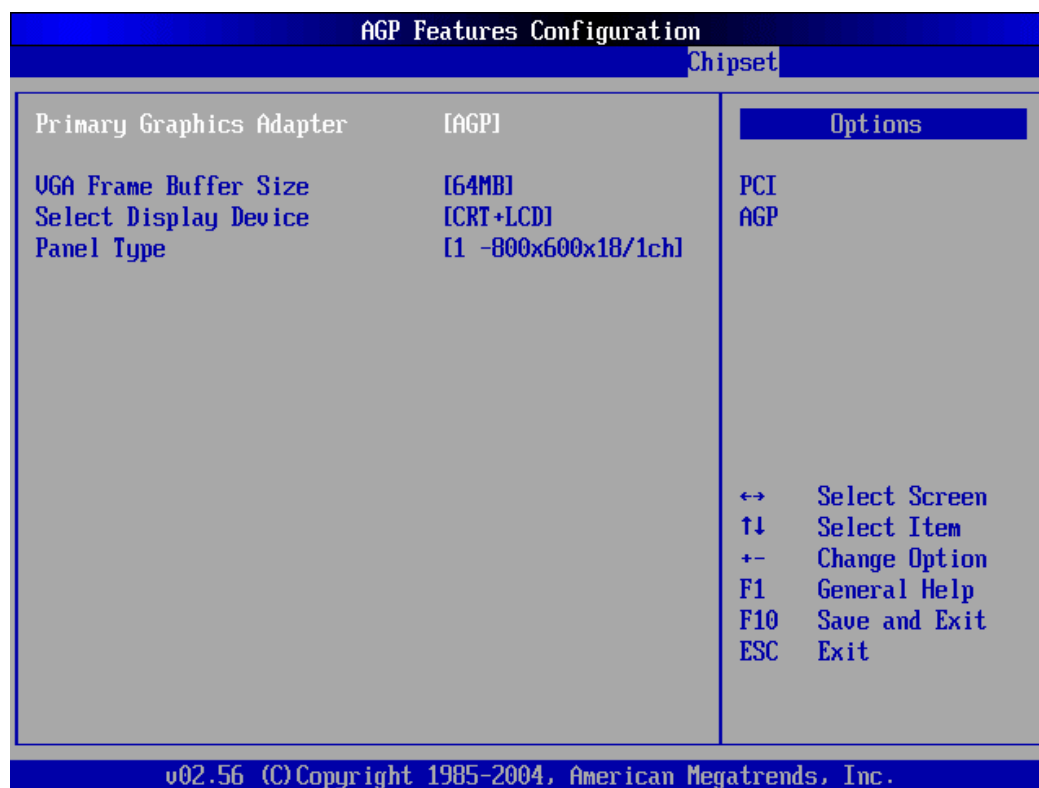
BIOS Menu 21:Northbridge Chipset Configuration

The **Northbridge VIA CN400 Configuration** BIOS menu has three submenus

- AGP Features Configuration
- V-LINK Features Configuration

4.7.1.1 AGP Features Configuration

The **AGP Features Configuration** menu (**BIOS Menu 22**) configures the AGP settings.



BIOS Menu 22: AGP Features Configuration

→ Primary Graphics Adapter [AGP]

The **Primary Graphics Adapter** selects the graphics adapter the system uses.

- **PCI** (Default) PCI graphics adapter is used
- **AGP** AGP graphics adapter is used

•VGA Frame Buffer Size [64MB]

The **VGA Frame Buffer** Size BIOS option sets the memory buffer size for the VGA display.

The following buffer sizes can be set:

- None
- 8MB
- 16MB



- 32MB
- 64MB (Default)

• **Select Display Device [CRT+LCD]**

Use the **Select Display Device** BIOS feature to determine what displays are used. Dual display functionality is enabled here. Dual display configuration options are listed below:

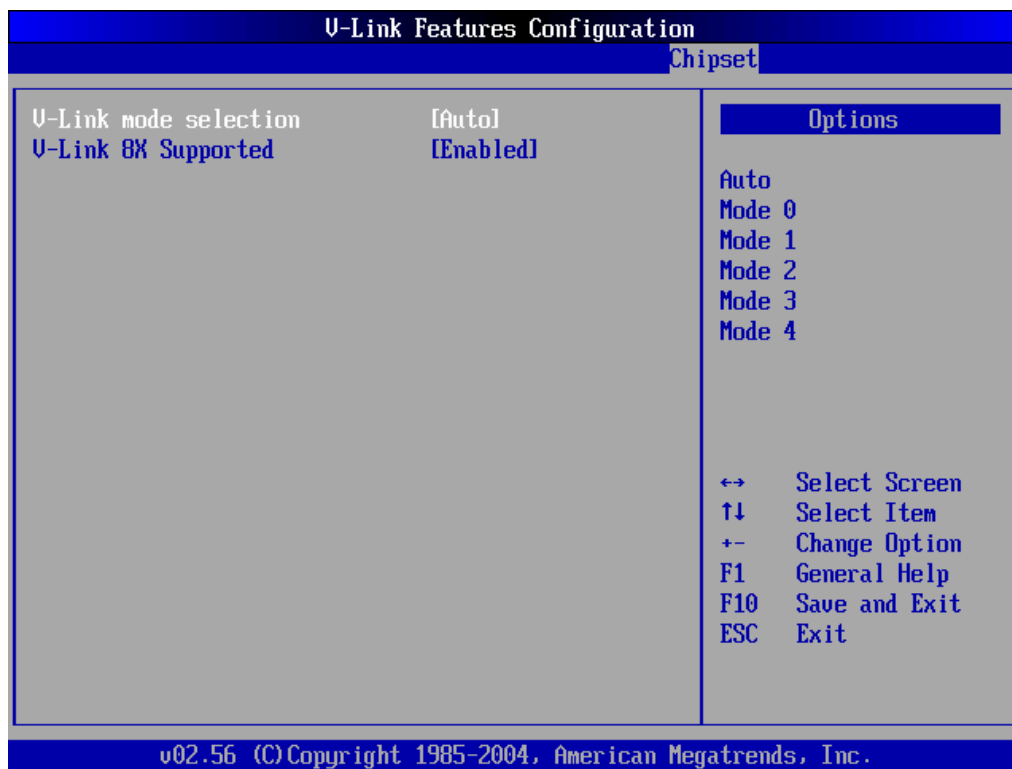
- CRT only
- CRT + LCD **DEFAULT**
- CRT + TV
- CRT + CRT2

• **Panel Type [1 –800x600x18/1ch]**

The **Panel Type** option specifies the device the panel type.

4.7.1.2 V-Link Features Configuration

The V-Link Features Configuration menu (**BIOS Menu 23**) configures the V-Link Features.



BIOS Menu 23: V-Link Configuration

→ V-Link Mode Selection [Auto]

The **V-Link Mode Selection** controls V-Link bus operation. The following options are available.

- Auto
- Mode 0
- Mode 1
- Mode 2
- Mode 3
- Mode 4

→ V-Link Data 8X Supported [Enabled]

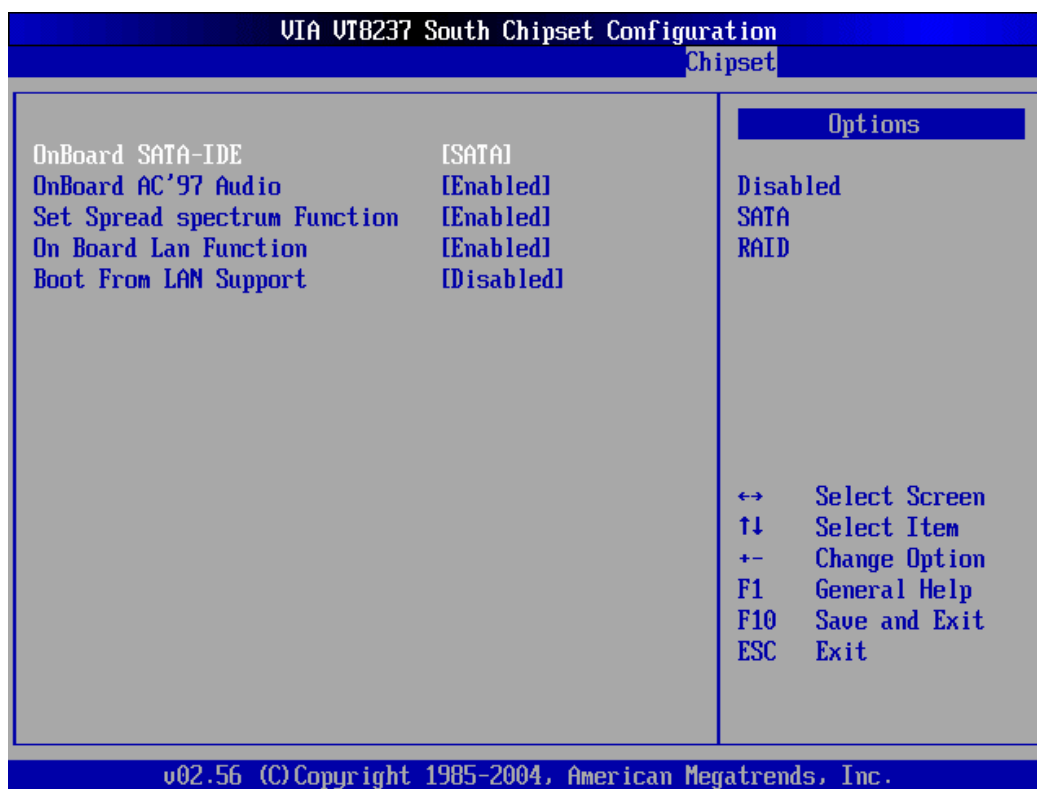
The **V-Link Data 8X Support** controls the data transmission speed between the Northbridge and Southbridge chipsets.



- **Disabled** V-LINK Data 8x transmissions not supported and the transmission speed between the integrated Northbridge and Southbridge decreases.
- **Enabled** (Default) V-LINK Data 8x transmissions supported and the transmission speed between the integrated Northbridge and Southbridge increases.

4.7.2 SouthBridge Configuration

The **SouthBridge Configuration** menu (**BIOS Menu 24**) configures the southbridge chipset.



BIOS Menu 24:SouthBridge Chipset Configuration



→ Onboard SATA-IDE [SATA]

Use the **Onboard SATA-IDE** option to set the onboard SATA controller. If the RAID function is going to be used this option must be set in the **RAID** mode.

- **Disabled** The onboard SATA controller is disabled
- **SATA** (Default) The SATA controller is set as an IDE device with an ID at 0181h
- **RAID** The SATA controller is set as a RAID device with an ID at 0181h

→ OnBoard AC'97 Audio [Enabled]

The **OnBoard AC97 Audio** enables or disables the AC'97 CODEC.

- **Disabled** The onboard AC'97 is disabled
- **Enabled** (Default) The onboard AC'97 automatically detected and enabled

→ Set Spread Spectrum Function [Enabled]

Use the Set **Spread Spectrum Function** option to reduce the EMI. Excess EMI is generated when the system clock generator pulses have extreme values. Spreading the pulse spectrum modulates changes in the extreme values from spikes to flat curves, thus reducing the EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

- **Disabled** EMI not reduced
- **Enabled** (Default) EMI reduced

→ OnBoard Lan Function [Enabled]

The **OnBoard Lan Function** option enables or disables the onboard LAN.



➔ **Enabled** (Default) The onboard LAN device automatically detected and enabled

➔ **Disabled** Onboard LAN function manually disabled

➔ **Boot From LAN Support [Disabled]**

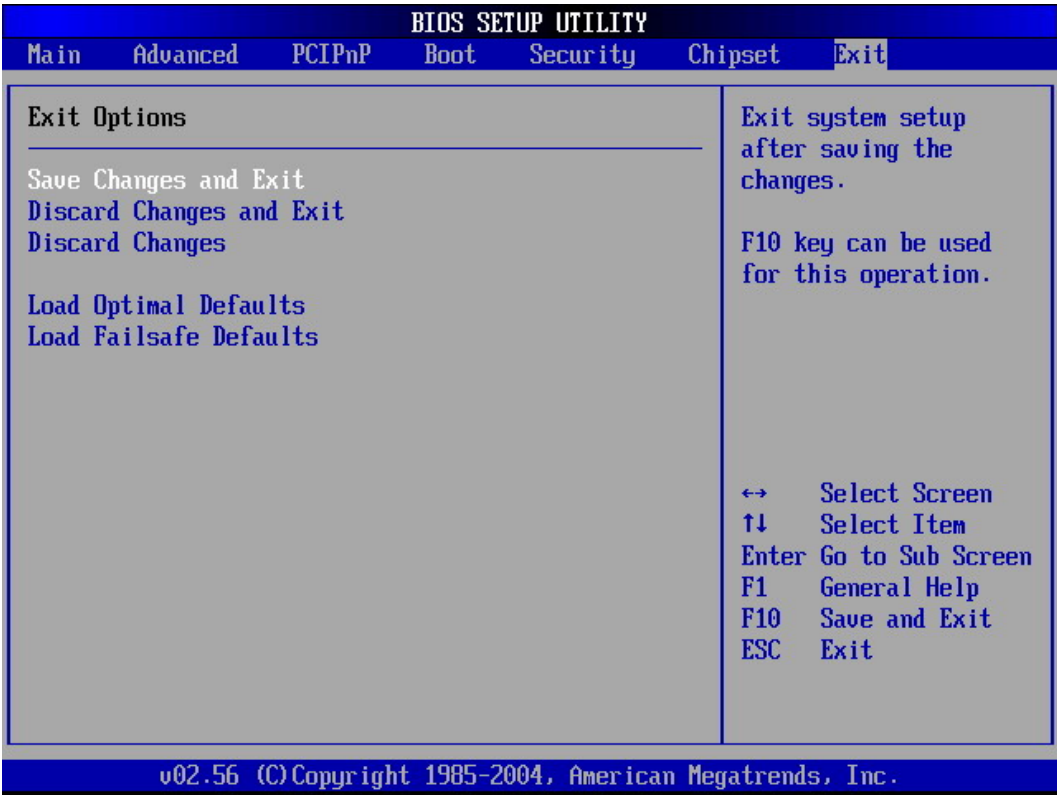
The **BOOT From LAN Support** option enables the system to be booted from a remote system.

➔ **Disabled** (Default) Cannot be booted from a remote system through the LAN

➔ **Enabled** Can be booted from a remote system through the LAN

4.8 Exit

The **Exit** menu (**BIOS Menu 25**) allows default BIOS values to be loaded, optimal failsafe values and to save configuration changes.



BIOS Menu 25:Exit

➔ **Save Changes and Exit**

If configuration changes are complete and a user wishes to save them and exit the BIOS menus, select this option.

➔ **Discard Changes and Exit**

If you have finished making configuration changes but do not want to save them and you want to exit the BIOS menus, select this option.

➔ **Discard Changes**

If you have finished making configuration changes but do not want to save them but still want to continue working with BIOS, select this option.

➔ **Load Optimal Defaults**



This option allows you to load optimal default values for each of the parameters on the Setup menus. F9 key can be used for this operation.

➔ **Load Failsafe Defaults**

This option allows you to load failsafe default values for each of the parameters on the Setup menus. F8 key can be used for this operation.



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Appendix

A

BIOS Configuration Options



A.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter Chapter 4**.

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Appendix

B

Watchdog Timer



NOTE:

The following discussion only applies to DOS environment.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer will either perform a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table B-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer will start counting down. While the timer value reaches zero, the system will reset. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer will be disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.



NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system will reset.

Example program:

; INITIAL TIMER PERIOD COUNTER

;

W_LOOP:

```
MOV    AX, 6F02H    ;setting the time-out value
MOV    BL, 30        ;time-out value is 48 seconds
INT     15H
```

;

; ADD YOUR APPLICATION PROGRAM HERE

;

```
CMP     EXIT_AP, 1    ;is your application over?
JNE     W_LOOP        ;No, restart your application
```

```
MOV     AX, 6F02H     ;disable Watchdog Timer
MOV     BL, 0         ;
INT     15H
```

;

; EXIT ;



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Appendix

C

Address Mapping



C.1 IO Address Map

I/O address Range	Description
000-01F	DMA Controller
020-021	Interrupt Controller
040-05F	8254 timer
060-06F	Keyboard Controller
070-07F	NMI Mask/Real time Clock
080-09F	DMA Controller
0A0-0BF	Interrupt Controller
0C0-0DF	DMA Controller
0F0-0FF	Numeric data processor
1F0-1F8	Fixed Disk
2F8-2FF	Serial Port 2 (COM2)
378-37F	Parallel Printer Port 1 (LPT1)
3C0-3CF	Reserved
3D0-3DF	Color/Graphics Monitor Adapter
3F7-3F7	Standard floppy disk controller
3F8-3FF	Serial Port 1 (COM1)

Table C-1: IO Address Map

C.2 1st MB Memory Address Map

Memory address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
F0000-FFFFF	System BIOS
1000000-	Extend BIOS

Table C-2: 1st MB Memory Address Map



C.3 IRQ Mapping Table

IRQ	Description	IRQ	Description
IRQ0	System Timer	IRQ8	RTC clock
IRQ1	Keyboard	IRQ9	Available
IRQ2	Cascade to IRQ Controller	IRQ10	AC '97 CODEC
IRQ3	COM2	IRQ11	Intel 82562ET LAN
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	Available	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Parallel Port	IRQ15	Secondary IDE

Table C-3: IRQ Mapping Table

C.4 DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

Table C-4: DMA Channel Assignments